THE MODERN KNOWLEDGE LIBRARY

PHILOSOPHY AND RELIGION

VOLUME SIXTEEN

containing

PHILOSOPHY
J. L. Stocks

GREAT PHILOSOPHIES OF THE WORLD
C. E. M. Joad

RELIGIONS OF THE WORLD
Rev. C. C. Martindale

PLATO AND ARISTOTLE
J. A. K. Thomson

FREEWILL PROBLEM
H. Wildon Carr

LOGIC AND REASONING
S. V. Keeling

LONDON : ERNEST BENN LIMITED
BOUVERIE HOUSE, FLEET STREET, E.C.

THE MODERN KNOWLEDGE LIBRARY

containing

25 VOLUMES OF 480 PAGES EACH

For Full List, see Wrapper

BENN'S SIXPENNY LIBRARY

AN INTRODUCTION TO PHILOSOPHY

By J. L. STOCKS
Professor of Philosophy in the Victoria University of Manchester

LONDON: ERNEST BENN LIMITED
BOUVERIE HOUSE, FLEET ST. E.C.

First published 1929

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS, LTD., GUILDFORD AND ESHER

CONTENTS

CHAPTER PAGE

I. NATURE - - - - - 5

II. NUMBER - - - - - 13

III. MIND - - - - - 22

IV. SOCIETY - - - - - 32

V. CONDUCT - - - - - 41

VI. RELIGION - - - - - 51

VII. VALUE - - - - - 61

VIII. REALISM - - - - - 71

BIBLIOGRAPHICAL NOTE - - - 80

AN INTRODUCTION TO PHILOSOPHY

CHAPTER I

NATURE

THE first problem on which those early Greek thinkers concentrated, from whom modern philosophy traces its descent, was the problem of conceiving the world as an order. The faith in which we now live so carelessly that everything that happens has its reason, a reason capable in the end of being discovered and expounded by human intelligence; this faith was once an achievement and, like every other achievement, had to be won. The mythology of the Greeks themselves and of the primitive races of our own day exemplify another and an earlier mode of explanation. A world which is *the plaything of savage gods and their passions defies* detailed analysis and understanding. An intelligible world is a world in which everything takes place according to law. "This world," said Heraclitus of Ephesus, "which is the same for all, no one of gods or men has made; but it was ever, is now, and ever shall be an ever-living Fire, with measures kindling and measures going out." A hundred and fifty years later it was one of Aristotle's favourite sayings that "Nature does nothing at random or in vain." Through the centuries the principle takes different forms as the methods vary by which the analysis of Nature is attempted; but once achieved it remains, for the conquests of thought are lasting.

Since those days the natural sciences have gradually come into being and declared their independence. It is their special task to formulate the laws on which the events of Nature depend. The philosopher is a critic and spectator, who, as he looks on at the work of the scientist, tries from time to time to restate it from a more general point of view or to analyze its methods and presuppositions. Thus in the middle of the nineteenth century Herbert Spencer attempted a comprehensive account of the universe, to be attained by generalizing and correlating the results of the particular sciences; and John Stuart Mill, analyzing the procedure of science, formulated the logic of induction as the process "in which the investigation of Nature essentially consists." Neither of these philosophers was himself actively engaged in scientific work, nor did either of them conceive philosophy as a science, possessing material of its own which might be mastered by treatment similar to that of other sciences. Philosophy to both meant an inquiry on a different plane from that of science—a secondary or subsequent inquiry, since the sciences found the material from which they started in experience, and philosophy found its starting-point in the sciences.

For us moderns, then, it seems reasonable to say that the problem of the order of the world has bifurcated. There is the scientific and the philosophical problem. Each group of inquirers conceives the problem in its own way and meets it with its own devices. The scientist, if Mill is right, searches for uniformities, determined to reduce an experience, which, on the face of it, never repeats itself, to an unending repetition of a few natural laws; and in this search he assumes without argument or question that the world is such as to make the search feasible, that every event has its cause in the events which precede it, that the same cause has always the same effect, that "the course of Nature is uniform." The philosopher may conceive his task, like Spencer, as a synthesis of the sciences, or more abstractly (as it may seem), with Mill, as an analysis of the methods and principles of scientific inquiry. On the former view there can be no more finality in philosophy than in science. Philosophy will need to be always at work revising and rewriting as new problems come to the front and new hypotheses gain acceptance. On the latter view perhaps something more permanent might be achieved, since principles and methods remain over long periods the same. But in either case the philosophic problem is distinct from the scientific, and remains to be settled when the scientific problem is solved.

The simplest possible conception of knowledge sees thought as occupied in making a map exhibiting in due relation all the things that men's experience fitfully and intermittently reveals to them. For this task co-operation and systematic record are necessary; for the experiences of many men at times and places far distant from one another must be brought together. The sciences, as we now conceive them and see them working, present precisely such a picture of systematic co-operation. The questions are grouped into great departments, each of which is called a science and has its own independent organization. Within the wider groups narrower groups are marked out and are given similarly a degree of independence. New sciences and sub-sciences continually claim recognition. But subdivisions and regroupings detract little from the impression of order and system which the busy hive of the scientists produces.

The simplest possible conception of philosophy sees the philosopher as architect and organizer of all this labour. It is a matter of common experience that a co-operative investigation requires a directing brain. How is overlapping and waste of effort to be prevented unless the several groups of questions are framed and thought out in mutual relation? And how shall the right supply of labour for each part of the inquiry be found unless some central organ gives each investigator his commission? The kingdom of the sciences requires, surely, like any other kingdom, a sovereign. If so, philosophy, which by tradition is restricted to no special province of reality, must take this place.

But few, if any, philosophers have at any time claimed this kind of authority for their decisions, and in our own day such a claim would be strenuously resisted in the name of freedom by the directors of scientific inquiry. It seems, in fact, that to claim so much would be seriously to overrate the power of mere thinking. Thought is no doubt always active in the interpretation of experience, but it cannot legislate in this fashion for experience. It is the boast of science that it approaches Nature with open eyes, as Francis Bacon advised, without prejudice or prepossession. Its procedure is inductive, which means, as Mill explained, that it makes experience its own test. Therefore the plan and method of inquiry must be framed by those in contact with fact at the suggestion of the facts themselves. Consequently a philosophy which would live at peace with the modern scientific spirit must place itself last, not first; it must be content to come in at the end rather than at the beginning; it must be inductive in spirit, as science is inductive—*i.e.*, the first and last word with it, as with science, must be the observed fact.

Assuming, then, that philosophy in its relation to the sciences is generally receptive rather than regulative, that it takes what science gives and makes what it can of it, we have to define on this basis the character of the philosophic problem.

Let us suppose a single volume which summarizes in separate chapters the main results of each several science. Suppose, further, that the volume contains an introduction, explaining the order to be followed in this survey, and an epilogue calling attention to the most striking features of the scene surveyed. What would be the character and value of such a volume? It is clear, surely, that each chapter, except the first and the last, would be merely an exercise in the particular science with which it dealt, and that, so far as these chapters are concerned, the reader would probably be better off if, instead of reading them, he procured and read a first-rate textbook of each science. So far, then, the answer to our question is that such a volume will be in character scientific, and in value negligible. There remains the prologue and the epilogue. If the volume is to contain anything distinctive and original, we shall find it here. But that is really to say that these are not merely what they pretend to be, mere prospect and retrospect, but something more. If, however, important new questions are raised when the world of science is viewed as a whole, clearly it is these questions that philosophy should discuss, and the formal *résumé* of the results of the sciences, which is at best second-hand repetition, can be dispensed with altogether.

This simple illustration is intended to bring out the point that a synthesis of the sciences needs no philosophy to bring it about. It already exists, by the efforts of the scientists themselves, in the sense that to make it is within the reach of any person who has the capacity to understand and the energy to assimilate the problems and theories of the various sciences of his time. It is not denied that such an omnivorous scientific appetite might be of value to the world. It is quite possible that its owner might be able to point the way to fruitful lines of scientific advance, which the more specialized inquirers would not have discovered or not have discovered so soon. The point is only that it does not cease to be scientific by becoming omnivorous; and that the benefits, if any, of its exercise will be scientific and not philosophical. The philosophical problem, if it is independent of the scientific problem, must at least lie in certain further questions, which arise when the scientific world is regarded as a whole.

If, again, one asks the question of fact: What have the natural sciences contributed in recent times to the material of philosophy? the answer seems to show that questions concerning the relations of the sciences to one another, such questions as a general acquaintance with scientific advance over its whole field might be expected to elucidate, have not been prominent. Early philosophers were impressed by the mathematical method, and, in framing their conception of knowledge and of its possible extensions, were perhaps unduly influenced by this example. In the beginnings of modern philosophy attempts were made to apply a similar method in philosophy itself. Then, as the inquiries developed—which we now refer to as the sciences, inquiries professedly based on the analysis of observed fact—again the method was generalized and imitated. Locke tried to trace thought to its elements, having, no doubt, the chemical and physical examples in mind. Hume was similarly inspired when he described his *Treatise of Human Nature* as "an attempt to introduce the experimental method of reasoning into moral subjects." A successful method will always find imitators.

The scientific doctrines that have attracted the general attention of philosophers have not been very numerous: but in all cases they have been scientific novelties of fundamental importance to the sciences in which they originated. The most signal cases are the biological principle of the Evolution of Species and the physical principle of Relativity. The reason why these two doctrines have interested so many persons not primarily interested in the sciences to which they properly belong is twofold. In the first place, they affected the fundamental conceptions of these sciences, and the fundamental conceptions of any science are the common property of every science, and form part of the impalpable, but influential, intellectual background of every thinking man. And secondly, both principles seem capable of a wider application than the sciences themselves could give them. Philosophic discussion was undertaken, not to determine their validity within the science which framed them or for its investigations, but in order to discover how wide their further scope was, and how far popular opinion was right in detecting an implicit challenge to certain articles in the working faith of humanity. The essence of Herbert Spencer's venture was the attempt to define precisely the principle of evolution and to apply it in fields far beyond the scope of its original intention.

It is evident that in the modern world philosophy is receptive of ideas from science, and common sense would hardly be satisfied if it were not. In the sciences we have a determined and sustained attack on the dark background of perceptual experience, which does much to clear up the conditions of that experience itself, and has progressively succeeded in widening the circle of illumination as well as, incidentally, in extending the range of man's practical competence. By this work, surely, if anywhere, something of the general structure of the universe should be revealed. But the philosophical problem is not correctly grasped until it is perceived that the philosopher is also under the obligation of accepting ideas from other sources. The striking discoveries of the scientists and their cumulative achievements have made such an impression on the modern world that men have often been tempted to think that there is no truth but science; and if this were so, there would be no room for philosophy. It is just because science represents but one of many contacts with reality that philosophy is needed; and for the same reason philosophy is neither a synthesis of the sciences nor itself a science. However important science may be to human life, it is only one element among others, and the philosopher must have the whole before him.

Man is not merely a scientist. He has to live and earn his daily bread; and though these activities are not, as such, like those of the scientist, directed to the discovery of truth, yet they imply doubts and certainties of fundamental importance, which cannot but affect the structure of any outgrowth from them, such as the scientific activity itself. The branch of philosophy called "Ethics" approaches the philosophic problem from this side. Further light may be sought from the expressions of man's gregariousness, finding its most obvious organized embodiment in the phenomena of politics. Another branch of philosophy takes this road of approach. Then within the field of knowledge itself the scientist has rivals or colleagues who cannot be ignored. The most impressive of modern achievements in the field of knowledge, apart from the sciences, is the development of the systematic study of history. In history and biography (which may be taken for this purpose as one) we have a form of knowledge which is sharply contrasted with that of the scientist in this, that it reveals to us a time, a period, a personality—in short, an individual—while science presents types, structures, laws—always something general and abstract. Finally, there are activities which are difficult to place, such as poetry, art, religion. These do not seem to aim directly at truth, like science and history, yet they claim often to possess or imply a higher truth in the name of which their devotees will defy science or history. Their incontestable power over the human mind necessitates an examination of this claim; and from the earliest times, with varying emphasis, philosophers have always made some attempt to put them too in their place.

Now, the philosopher, as a philosopher, is not entitled to lay down the law to any of these activities. In every department his attitude remains receptive, not regulative. He cannot tell the scientist or the historian or the artist what work they are to do or how they are to do it. He cannot tell men how to solve their practical problems. Like any other man, he may be asked for advice and may consent to give it; but such gifts as he may show in this direction are independent of his philosophy. In each sphere it is the central commonplaces that interest the philosopher, because what he wants to discover is what each activity is and what each contributes to the whole which they together form—the human spirit on the one hand and the world which confronts it on the other. Thus in science he is not specially interested in the new discovery. For most purposes the science of a hundred years ago, which would be valueless to the scientist himself, would serve the philosopher as well as the science of to-day, since it might exemplify equally well the characteristic attitude and method of the scientific inquiry. It is this attitude that he seeks to distinguish and define, and he keeps watch on new developments only for signs of fundamental changes.

CHAPTER II

NUMBER

The conquests of thought are lasting. But the step forward often brings with it a temporary distortion and displacement, lasting, perhaps, for many generations, due to excessive emphasis on the chief factor in the advance made. Men tend to press a successful principle beyond its capacity. The new principle takes its discoveries captive, and is seen by them as opening the royal road to the truth. The philosophy of a given time represents the attitude of that time to reality as a whole, so far as it is self-conscious; and the phenomena above referred to as distortions will find their characteristic expression in the emergence of a new philosophy, a new vision of the world (*Weltanschauung*, to use the expressive German term), under the dominating influence of some great departmental development whose significance is somewhat exaggerated.

The history of philosophical thought reveals few influences so potent and persistent as that of Mathematics. Mathematics is a relatively early creation of the human intelligence. The rapid arrival of geometry was the great contemporary fact in the field of knowledge for Plato, and its development was actively and fruitfully pursued by Greeks long after Plato's time. Science, as we know it, is of much later birth. We are accustomed to think of science as essentially, or at least ideally, mathematical. The sciences all depend, we suppose, ultimately on a mathematical physics, and the degree of their perfection can be approximately measured by their ability to formulate their results in precise mathematical form. But the Greek world on which mathematics burst as a new discovery viewed it differently. That world was already familiar with the investigation of Nature as an attempt to classify and analyze the leading phenomena of the earth and of the heavens. With that inquiry these strange and fascinating demonstrations of quantitative relations seemed at first to have no direct connection. So far as the mathematical ideas were generalized or applied philosophically, they appeared as the rival, not the ally, of the older method. They represented a new clue to reality and tended to encourage a philosophical attitude in some respects sharply opposed to that of the early physicists.

The earlier physical speculations tended in a direction which may be conveniently described by the two modern terms "materialism" and "empiricism." That is, they tended, first, to produce the conviction that all the phenomena of the world, including those of life, could be explained without remainder by determining the properties and interactions of bodies, bodies being ultimately analyzable into a small number of elements or perhaps even reducible to differentiations by mechanical means of a single fundamental substance. They tended, secondly, to develop into a careful and systematic observation of natural processes, by which theories could be tested and verified, and further material for a general view of Nature accumulated. To both of these tendencies the initial influence of mathematics seems to have been hostile. Both Plato and Aristotle laid great weight on the necessity of superseding or supplementing the material explanation. To matter they opposed form; and in the development of the notion of form the influence of mathematics was, without doubt, of cardinal importance. This opposition is, like most philosophical oppositions, less simple than it looks; for the matter to which form is opposed is an abstraction, not the visible body which to the materialist provides the explanation of all phenomena. But the assertion, common to both these great thinkers, that form, which is not matter, provides the true ground of explanation and understanding necessarily involves the view that the sovereign reality is not of the nature of body at all. We are therefore justified in connecting with the development of mathematics the assertion by classical Greek thought of a non-material reality.

The opposition to what was, after all, no more than a nascent empiricism is easily understood. In mathematics no laborious survey of an extensive field is demanded; truths valid universally are discovered by the mere operation of thought upon its own clear conceptions, and with such complete transparency of evidence that verification from experience may be dispensed with altogether. In the first enthusiasm which this new method aroused it might well seem that observation was waste of time and that the geometrical theorem was the type of all true knowledge. A classical expression of this exaggeration is the scheme of higher education in Plato's *Republic.* There the gateway to knowledge is mathematics, which is valued precisely for this, that it forces the student to leave the senses behind and rely on sheer thinking; and the development of mathematics into, *e.g.,* harmonics and astronomy is to be conceived as a purely mathematical development—a development in which the field is complicated by the addition of a new factor or dimension, the method remaining the same as before. Plato's astronomer is concerned with theorems about solids in motion; he is to use his reason, not his eyes, and to "leave the starry heavens alone."

The example of mathematics forces attention to the problem of the nature of knowledge, and extorts from the philosopher the recognition of a certain duality in man's apprehension of the real which reappears in various forms throughout the history of philosophy. Some distinction between appearance and reality must be as old as thought itself. So soon as men begin to think, they must become aware that things are not precisely what they seem to be. The earliest physics insists that processes apparently quite unlike are, in principle, the same, and that processes which seem identical are widely different. But in these cases the appearance is rejected as misleading or illusory; it is explained away, and only the reality behind the appearance is taken into the final account. The sun, which looks small, is really enormously large; the desert, which seems to shine with water, is really a sandy waste. Mathematics does not offer in this way a reinterpretation of experience, a correction of *prima facie* judgments. Its truths are capable, no doubt, of being illustrated in experience and applied to it. But it moves in a region remote from experience, operating with terms of its own. It compels our assent to its conclusions, but not at the cost of any denial of the trustworthiness of our senses. Thus in mathematics we have the example of the orderly and systematic achievement of truth by thinking, and side by side with it we have our senses and all that is built upon them. If mathematics is knowledge, is this knowledge too? If so, must we not recognize two kinds of knowledge? For this acquaintance with the facts of the world, though not wholly disorderly and disconnected, reveals a very different kind of order from that of the mathematician and by a very different method from his.

In this situation, clearly, a number of different lines of interpretation are open to philosophic speculation. The dualism may be accepted and asserted, or it may be denied. The dualism is accepted if it is admitted that these are both kinds of knowledge. When we know, we apprehend reality; thus reality becomes dual, corresponding to the dual mode and method of apprehension. The dualism is denied if it is argued that one of the two contrasted constructions is not knowledge; and this denial has two main forms, according as the one or the other construction is refused this title. Further, since the negative is in this case a good deal less explicit than the affirmative, there is a large variety of sub-forms of the second alternative. That which is rejected may be dismissed as illusory, as mere appearance, or it may be regarded as an incomplete and partial view of that which is, or might be, wholly revealed under the other form. The dualism, again, may be regarded as final and necessary for the finite human mind, but yet not as ultimate: it may be conceived as transcended by a perfect and eternal intelligence, which views all things either under one of the two forms or in some better way in which the defects of each mode are removed.

The question at issue here is not primarily a question as to the place of mathematics, but a much more general question as to the tenability of an ideal of knowledge which the example of mathematics suggested. To Plato, in fact, mathematics itself was only a stepping-stone to the true knowledge in which thought, finally released from all dependence on the senses, enjoyed its freedom in the vision of reality. The claim of thought to such absolute autonomy is one pole. The other pole is the complete subjection of thought to the mastery of the senses; the view that such freedom as the mind has is only that of combining what experience separates and separating what experience conjoins, that the principles of these operations are themselves in some way derived from experience, and the result of their application only a more perfect submission. To the one the type of knowledge is the perfect transparency of a systematic interconnection revealed to pure thought or reason; to the other, the basis is the indefeasible certainty of present sensation, and knowledge is whatever can be cogently linked on to that. Hence, the names commonly given to the two tendencies are rationalism and empiricism, and the extreme of empiricism, which subjects thought most strictly to the senses, is called sensationalism.

The question, "What do we know?" cannot be separated from the question, "What is real?" For, as we have already remarked, to say that such and such a body of doctrine is knowledge is to say that those who possess and understand it are so far acquainted with reality. The view that knowledge is only to be attained by the complete release of thought from dependence on the senses necessarily involves the view, negatively, that reality lacks the modes of determination distinctive of sense-experience, and, positively, that reality exhibits that kind of order which pure thought is able to discover.

The thought which is based on sensation is *primarily occupied in determining the qualitative* and quantitative relations and characteristics of bodies, and these bodies are viewed as continuously changing. Things and events make up the world of experience, and each is a unique individual fixed in its position by the co-ordinates of time and space. It is this unique individuality, tied to a definite—but more or less extensive—time and space, that seems to be the distinctive mark of the claimant for reality that thought based on the senses presents to us. It is this, then, that the type of doctrine we are considering will tend to reject, and it will thus be naturally led to deny the reality of time and space altogether. For the truths which pure thought, as exemplified in mathematics, reveals are not statements about individual things or events, and have reference to no particular place or time. "The square of 3 is 9." "The two angles at the base of an isosceles triangle are equal." The reality with which such propositions acquaint us is a timeless or eternal reality. And while all statements descriptive of experience leave an unexplored margin—the before and after which is not described; that which lies beyond the field of observation; to say nothing of the obvious impossibility of exhausting what lies within the decreed limits—these propositions of mathematics move in a region which is exhaustively defined, and are capable of guaranteeing the completeness of their enumerations. The revelations of experience come piecemeal, and there is no end to them; but in the other sphere, though all may not be known, our partial knowledge acquaints us with a whole or system. This type of doctrine will regard reality, positively, as such a whole and its metaphysics will aim at a correspondingly systematic character.

If this universe is really an eternal system, capable of being grasped as a whole by pure thought, then the multiplicity of things and events—which is the field of man's practical activity—must be relegated, together with that activity itself, to the level of appearance. But there is also the possibility that thought, in its advance, may ultimately get beyond this merely negative attitude to the first appearances. Common sense contrasts the abstractness of mathematics with the concreteness of sense-experience. The type of theory we have now in mind will admit that mathematics is abstract, but it will not admit that sense-experience is concrete. To it the first lesson of philosophy is the conviction of the inadequacy of the senses as a revelation of reality. But appearances cannot simply be dismissed: they must be explained away. These corporeal things and their spatio-temporal order must in some sense be accounted for, even if their reality is denied. Plato accorded to the furniture of the world a quasi-reality in virtue of its participation in the eternal forms. Modern philosophers have seen the advance of thought as the overcoming of its initial abstractions and the progress towards a goal in which universality and individuality are reconciled. Thus, the timeless reality, though it cannot accept the transient individuals of our experience as they stand, may yet perhaps contain a real multiplicity of individuals as integral constituents of it.

The opposed empirical attitude starts, obviously, from the other end. Its aim will be to build up a theory of the general nature of reality on the basis of the fundamental certainties secured in the act of sense-perception. This starting-point dictates a certain empiricism of method, and gives a corresponding stamp of incompleteness or contingency to the results obtained. To the rationalist attitude, as above described, it is vital that metaphysics shall be systematic and present reality as a whole. Metaphysics, on this view, as Kant observed, is nothing if it is not complete —*nil actum reputans, si quid superesset agendum* (" thinking nought done if aught remained to do "). But to the consequential empiricist all thought is but the echo of experience, and each item of experience carries its guarantee within itself. Knowledge is, therefore, built up piecemeal, and failure in one part of the field throws no doubt on success in another. The starting-point does not determine the character of the result, except so far that the empirical philosopher, however far from his starting-point he may travel and however wide his generalization may be, will still conceive himself as recording facts. There is great difficulty, as the history of philosophy shows, in determining what the primary certainties of sensation are. But however that question is solved, and however various the subsequent development may be, it may be taken as generally characteristic of the empirical attitude that in the description of reality the framework of space and time is retained. The empirical view, then, tends to present us with a world which is in principle inexhaustible, which is extended in space and time, and which admits of being known only as matter of fact.

The difficulties which the empiricist meets in developing his position are naturally, since he starts at the other end, the reverse of those which face the rationalist. Mathematics operates with universals. In geometry we determine the properties of the triangle, the circle, the square. Our results apply to any and every particular example of these forms; but the peculiarities of the particular example are of no interest to the geometer except so far as they exemplify similar universals of narrower range. *E.g.*, it may be of interest to a geometer that a given triangle is isosceles, but its size cannot interest him. The difficulty, then, of a theory inspired by this example will be to bring individuality within its scope, to provide for a multiplicity other than that of species within a genus. Experience, on the other hand, offers particular things and events, each a unique individuality, which we are, in fact, accustomed to group together under general terms such as "earth," "animal," "battle," "explosion." The empiricist tends to argue that all general terms are to be considered as a useful economy dictated by man's practical needs. It would be exceedingly laborious to give each thing and each event a name. There is no reality which the various individuals called by the same name each exemplify; the universal is a common name and no more. Thus the empiricist starts with the assumption of the unique individual as given, and has to exert himself to account for significant thinking, like that of mathematics, from which such individualities are altogether absent. If he does not actually embrace this extreme of nominalism, by which universals can have no more than a symbolic status, he will certainly always tend towards such a view and will be much concerned to explain the success of the mathematical method in its own sphere and to restrict narrowly the possibility of its extension.

In the foregoing I have sketched roughly two opposed types of theory under the names of rationalism and empiricism, each of which refuses to accept the duality in man's apprehension of the real, the existence in his judgments side by side of rational and empirical elements, as evidence of a duality in the real itself. The one maintains that the real is only known so far as it is apprehended rationally, the other that it can only be known empirically. It must not, of course, be supposed that philosophers can be classed simply as adherents of the one or the other of these views. All sorts of compromises and combinations are possible; and, in fact, when a philosopher is called rationalist or empiricist, no more is commonly meant than a certain emphasis or preponderance of the one tendency over the other.

CHAPTER III

MIND

A FURTHER complication is introduced into the philosophical field when it is realized that the problem of knowledge cannot be properly presented without an examination of the nature of mind. By its very conception mind is that which makes thought, belief, knowledge, possible. The nature of mind, then, will affect every assertion that any man makes about the world, and to discuss these assertions without discussing what mind is will be to take this central fact for granted. But the philosopher boasts that he takes nothing for granted and leaves nothing out. Therefore he cannot avoid this question when once it is raised, and the fact that the mind is at work in every assertion may tempt him to believe that the exploration of mind is the royal road to the truth, containing the solution of all the other problems within itself.

The necessity of some examination of the nature of mind arises, first, in the effort to meet certain kinds of scepticism. We are all familiar with the fact that changes in our individual condition alter the face of things for us, and lead us, if we are not careful, to say the opposite one day of what we said the day before. A cold in the head, a headache, a bad night's sleep—few are so prudent and cautious that they escape all distortion of judgment on such occasions. But these are passing states, easily detected by the sufferer, the effect of which can with sufficient effort be discounted. How shall we discount the factor of our own personal idiosyncrasy, which we necessarily carry with us into every judgment and every effort of thought? Perhaps by communication with other persons—though in our view of them, too, this constant factor cannot be escaped—a certain standardization may be effected. But what of this standard itself? Is it more than the "lie agreed on" among men? Pressing the suggestion of individual distortion the sceptic will argue that there is, and can be, no truth absolute or universal, but for each person a private, incommunicable truth and world, different from that of every other; and, pressing the suggestion of a specific human distortion, he will argue that the world which men present to themselves, after the best and most careful use of their capacities, as their agreed science or history, is only, after all, the expression of their human nature; it is at most human truth, what satisfies the human mind, private to the human race, useful, perhaps, to it, but of no interest to any other kind of creature, even if it could be communicated.

Thus a consideration of the limitations of the human mind, of the degree of its isolation, of its capacity to overcome these limitations and break down this isolation, is forced upon the constructive thinker as an incident in his effort to render an account of reality in its whole range. He has, in short, to prove the possibility of knowledge. At first this task presents itself as merely a defensive or precautionary preliminary. He will prove his competency in reply to hostile attacks upon it, or he will find out, before he starts, what regions offer real hope of achievement, so that he may not waste his time over unanswerable questions. For many philosophies this remains a preliminary task; but for others the investigation of the nature of mind becomes philosophy itself. Kant presented his Critical Philosophy as an alternative to Dogmatism, which he described as " the dogmatic procedure of pure reason *without previous criticism of its powers.*" These words suggest that the criticism is a preliminary. But he also claimed for his *Critique of Pure Reason,* devoted, as its title indicates, to this task, that " there is not a single metaphysical problem that does not find its solution, or at least the key to its solution, here." Before Kant, Locke had attempted a similarly conceived criticism of the instrument, but his execution was very different and he claimed much less for his results. Two generations later David Hume, continuing Locke's work on Locke's lines, announced in the introduction to his *Treatise* that " there is no question of importance, whose decision is not comprised in the science of man." In Germany, Hegel, continuing in his fashion the work of Kant, rejected the notion of a *previous* criticism of mind altogether, and maintained that " thought alone constitutes the essence of all that is." Thus mind, once introduced into the philosophical field as a subject for investigation, refuses to remain a mere part of the problem, and for thinkers as far apart as Hume and Hegel claims a monopoly of attention.

By the time attention is turned to the nature of mind it may be presumed that the opposition between empiricism and rationalism, treated in the last section, has already declared itself. A *prima facie* dualism will have been recognized in human thought—on the one hand, constructions depending directly on the evidence of the senses; on the other hand, constructions, like those of mathematics, which claim at least relative independence. The question as to the pedigree and provenance of these last is bound to arise. The Pythagorean-Platonic myth of recollection is an early answer to this question. The Soul has timeless or eternal existence, and the World is at bottom a timeless or eternal order. With that order the Soul has, or had, acquaintance, but becomes forgetful of it as a condition of birth in human form. All true knowledge is the recovery or recollection of that forgotten vision. Thus a direct contact outside this human life between a real soul, which is pure intelligence, and a real world, from which time and space and change are excluded, is postulated to account for the power of human thought to pass beyond experience or lay down the law to it. The suggestion, as it stands, has the defect that it leaves its two reals, the Soul and the World, related only so far that the one knows the other. How is knowing, the act or attitude which is the special characteristic of the real Soul, brought within the real world? What reality has Soul itself?

The modern movement, on the other hand, of which Descartes is the originator, begins from the thinking mind as an indubitable certainty. However far doubt is carried, argued Descartes, it cannot be carried so far as to deny the reality of the thought which doubts. Of the existence of a thinking mind, then, we are certain; and this primary certainty is wholly independent of the evidence of the senses. With this starting-point are connected two tendencies very prominent in the thought of the seventeenth and eighteenth centuries: first, the tendency to assert that mind is known directly and all else indirectly; secondly, the tendency to connect the mind's capacity to attain truth independent of the senses with its knowledge of itself.

What mind's knowledge of itself might amount to was a matter in dispute between rival schools of thought; but that all else was known indirectly, by means of representatives which were called ideas, was an article of faith almost undisputed at that time.

Now an idea is a mental fact, something that comes to birth in the mind and can appear nowhere else. It is a phase of the mental life having reference always outside its own being, to the surrounding world, or, it may be, to the mind's own past or future in that world. Thus we have an "idea," conceived primarily as furniture of the mind, and its relation to a world without becomes problematic. There was, indeed, a general presumption that the course of events within the mental field was in some sense determined by the course of events without it. Descartes and Locke, for instance, who differed fundamentally in their interpretation of the fact of knowledge, agreed in postulating a causal relation between the ideas of the human mind and the components of the real world. But this general postulate did not guarantee that there was a reality corresponding to every idea. Thus the "new way of ideas" (if we may apply to both the phrase that was directed specially against Locke) yielded a mental series which was, within its limits, a mirror of the real world; in general, it was determined by the real, and so far as it satisfied its own pretensions, every item in it would correspond precisely with an element of the real; but this correspondence could not be taken for granted. The existence of a reality corresponding to an idea required to be proved. Thus the fundamental problem of knowledge was to find an idea which, by its presence in the mind, guaranteed the existence of a corresponding reality. Descartes found such a basis in the idea of God, Locke in the "simple idea" of sensation and reflection. From these primary certainties all other certainties had to be derived.

The inference from the mental series to a reality independent of it was not left unchallenged. On the negative side of their teaching, Berkeley and Hume showed what a precarious foundation the representative idea provided. Berkeley's youthful discovery that "after all, nothing can be like an idea but an idea" led him to attack the whole notion of correspondence between ideas and reality, and to propound the view that the corporeal world is only ideas and has its being in being perceived. Thus Berkeley cut out matter as cause of ideas, and tried to construct an autonomous spiritual world. Hume accepted the negative side of Berkeley's argument, and questioned further the conception of spirit which was the basis of Berkeley's affirmations. His analysis revealed nothing for certain but the mental states themselves, discrete existences of unknown origin, and offered on that basis no prospect of scientific progress except by determining the laws of their sequence and combination. Thus philosophy was resolved into a "psychology without a soul." The final account of reality became an exposition of the laws of the association of ideas.

In the speculation of the seventeenth century, it was common, and even usual, to refer a priori elements of thought to innate ideas or innate principles. Ideas and principles which seemed not to be derived from experience were ascribed to an inborn capacity for framing them which had no direct connection with the power of sense-perception. Locke began his Essay with an argument against the legitimacy of such a postulate. But his Continental predecessor, Descartes, who chiefly provoked him to his philosophy of ideas, and his contemporary, Leibniz, whose elaborate criticism of Locke in the *New Essays* turned largely on this very point, both attempted to incorporate the notion of innate ideas into their philosophical systems. Leibniz's justification of the conception in controversy with Locke connects innate ideas definitely with the knowledge of self. The point on which he seizes is that Locke's ideas of reflection assert the mind's knowledge of itself, a knowledge which does not come by way of the senses. "We are, so to speak, innate to ourselves, and in ourselves there are being, unity, substance, duration, change, activity, perception, pleasure, and a thousand other objects of our intellectual ideas." The suggestion clearly is that, while the intellect may have no direct access to other things, in virtue of man's self-consciousness it has direct access to itself, and therefore has at its command for the general interpretation of reality whatever fundamental characters mind itself exhibits. Mind exists; mind has unity and duration; mind is active. These predicates stand for ideas which are intellectual in a double sense; first, as incapable of originating in sense-perception, as pertaining to thought, not to sense; secondly, because it is as characterizing mind or intellect that these attributes are revealed, in virtue of mind's awareness of itself. Thus the categories or fundamental conceptions, with the aid of which we seek to understand the world, have their source and verification within the mind.

Locke, if he had lived to read Leibniz's criticism, might have replied that this statement is, in effect, an admission of his own principle that all ideas originate in experience, all conceptions are obtained from perceptions; that the argument, if granted, merely shows the more fundamental conceptions to be derived from the use rather of the internal sense than of the external senses, from the mind's perception of itself rather than from the mind's perception of bodies; and that it in no way shows that these ideas of being, duration, activity, etc., are any more innate than the ideas of heat or colour or any other ideas directly associated with the external senses. The controversy might develop on a variety of lines, but sooner or later it would come back to the fundamental point of difference that, for Leibniz, mental activity is the type of all real existence, while Locke postulates a reality divided into mind and matter.

Now, we have already seen that Locke's "way of ideas" failed to establish this dualism on a basis strong enough to stand against criticism. In spite of his efforts to put matter and mind on a footing of equality, and in spite of a number of passages in which he claims to have done so, his starting-point forced on him the admission that mind knew mind directly, not through representative ideas. But if there is a difference in kind between the mind's knowledge of itself and its knowledge of other things, an opening is at once offered for claiming a special status in reality for mind. Of this opening both Berkeley and Hume, in their different ways, took advantage. The common starting-point of all three thinkers, as well as of their Continental predecessors and contemporaries, was, as has already been said, the conception of a mind faced with ideas and speculating about them, and their relation to reality. If this starting-point is accepted, it is not easy to deny the further assertion that every idea, and every development of ideas, reveals directly the nature of mind and only indirectly the nature of what lies beyond it.

In the picture of mind which we have just drawn mind is ascribed a dual function. It is a mirror of Nature and it is also a critic or judge of the pictures which the mirror presents. It perceives or has ideas; it also reflects upon its perceptions and ideas. Thus for Berkeley "idea" and "thing" are equivalent terms, and Hume refers to concrete features of the common-sense world, such as tables or fireplaces, as "perceptions." The passive mind has forced upon its notice a variety of objects, which by its own activity it seeks subsequently to bring into relation. It was one of the main motives of the reinterpretation offered by Kant to destroy this view of knowledge, by insisting that the activity of thought is present not merely, where everyone recognizes it, in the conscious effort to remove a doubt or find ground for assertion beyond the limits of observation, but also in the observation itself on which, as basis, such effort rests. If perception is opposed to thought and excludes it, then things are not perceived. Thought does not receive ready-made ideas, as objects on which to exercise its activity of interpretation; it is active from the beginning in creating the object on which it works, and the further operations are only the continuance of that creative activity. The true sense of Kant's "Copernican revolution" is his insistence on mental activity as essential to knowledge, on mind as creative of its object. While his predecessors were able to think of truth as consisting in the correspondence or resemblance of the idea which is before the mind to the actual thing which is its original, for Kant no such correspondence is now possible. For that which is made by mind and expresses its special nature cannot be proved genuine by its similarity to that which is not made by mind and does not express its nature. Thus Kant's correction includes Berkeley's point that an idea can be like nothing but an idea, but goes far beyond it. It rejects the representative idea, and with it the correspondence theory of truth; but, further, it rejects the new way of ideas altogether. There is no stock of ideas, among which one may distinguish some as innate, some as acquired, and some as invented, representing the capital of thought's industry. The mind is unceasingly active creating according to its own laws out of the material which the senses provide, and the test of its success in this activity can be nothing else than its ability to satisfy its own demands and aspirations.

From this new point of view it is no longer necessary to assert either that the mind has any specially direct and intimate acquaintance with itself and its own characteristics, or that the ground of any knowledge independent of the use of the senses is to be sought in such acquaintance with the self. In fact, Kant argued that the knowledge of the self and of the not-self grew up together in reciprocal interdependence, and that the chief vice of the way of ideas—"idealism," as he called it—was its assumption of the priority of knowledge of self. Thus something like Locke's dualism of material and spiritual substance is restored; but the gap through which criticism previously entered is closed.

With the other point, the basis of a priori knowledge, Kant is much concerned. Indeed, in his Introduction he represents it as the main problem of his first *Critique*. The main lines of Kant's solution follow from what has already been said. Thought is a creative activity, but it cannot create out of nothing. Its continuous occupation is the interpretation of experience, for which the senses provide the material. What is there besides this, what opening for knowledge independent of experience? By careful analysis, no doubt, of the facts of knowledge, such as is undertaken in the *Critique* itself, it is possible to discover the principles of thought's creative activity; but this will merely yield a formal account of the conditions of all knowledge whatever. It will not yield a body of truth, like the mathematical sciences, which has application throughout Nature. If there is a priori knowledge, other than that which the Critical Philosophy in its analysis of thought provides, that must be because thought has somehow at its disposal material independent of experience on which to exercise itself. In the section of the *Critique* called the "Æsthetic," Kant argues that such material is provided by the "a priori intuitions" of space and time, and he nowhere suggests that it is to be found anywhere else. Mathematical science is thus accounted for, but the possibility of extending the mathematical method into other fields is implicitly denied.

Finally, from this new point of view the criticism of the powers of mind becomes, as we remarked at the outset, no longer a mere preliminary to metaphysics, but metaphysics itself. For investigating mind in its characteristic expression, knowledge, the laws and principles which it will discover will be those by which mind brings order into the material on which it works, and these laws, otherwise regarded, will be the constitutive principles of the world which the mind presents to itself. By "a criticism of the powers of mind" might, of course, be meant a psychological investigation, which takes into account the differences between one mind and another, and the passions or prejudices by which thought is often distorted. Such a criticism might be of value, but it would not be metaphysics. But if by criticism is meant an account of mind in its efficiency, as it operates to its own satisfaction in knowledge, then criticism of mind is the basis of the only metaphysics within man's reach.

CHAPTER IV

SOCIETY

An account of mind cannot confine itself to the field of knowledge. Mind is active and creative, as well as reflective. Man does not merely contemplate the world in which he finds himself; he also strives to control and alter it. He will make it better to live in and more beautiful to look at. He claims also that through these practical and creative activities he gains a certain insight into the nature of the world, which, though it cannot be called knowledge in the primary application of the word, must yet be given its due weight when the philosopher makes up the final account. A similar claim is advanced even more strongly in the name of religion, which speaks with assurance on the ground of its special experience as to the organization of reality, and is quite prepared to reject all so-called knowledge which seems to be incompatible with the implications of its revelation. Thus the purely theoretical activities of the human mind exist in complicated interconnection with other activities, directed primarily to other ends, but capable also, it seems, of contributing on their own account to the theoretical construction. A philosopher to whom the account of mind is fundamental must try to determine the relations of these activities to one another and must attempt some synthesis which will do justice to the contribution of each. We will consider first the field offered by men's collective efforts in the field of social organization.

Social and political forms have occupied the attention of philosophers for a very long time; but they have been considered at different times with very different motives and on very different lines. In ancient Greek thought the political and ethical problems were very closely connected. They occupied a prominent place in the Academy and Lyceum; but neither Plato nor Aristotle regarded them as falling within the field of philosophy proper. Their prominence was not due to any idea, such as we have outlined in the last paragraph, that in the theory of the state or the analysis of the problems of conduct important aspects of the activity of mind may be discovered which throw light on the theoretical activity itself and contribute valuable material for its exercise. To them these were practical problems, in which theory was involved only as common sense always regards theory as contributing to practice, by defining in advance the general nature of the problems to be solved and laying down in principle the kind of solution to be sought. The philosopher was involved for the guidance he was able to give, not for the evidence he was to receive, from this important branch of human experience. He could give guidance because, having the whole world in his view, he, if anyone, could define the ultimate values to which human effort was fundamentally, though for the most part unconsciously, directed, and thus provide the necessary orientation for the work of the statesman. The knowledge of the philosopher was for the statesman what astronomy was for the navigator, a purely theoretic activity which would incidentally be of practical service by providing marks of absolute reliability.

There is one famous passage in the *Republic* of Plato which might seem to open the way to a different view of the importance of politics—the passage in which Socrates turns from the individual to the city, because there, as he says, we shall find written in large letters what is written very small on the human soul. The metaphor does, it is true, imply that we shall find nothing else written there but what we might find with sharp enough sight in the individual; but that implication does not amount to the denial of any special or distinctive contribution on the part of the state to human experience; it only asserts that any such contribution must be grounded ultimately in the nature of the human mind. For, as Plato says, a city is not found fixed like a rock in the earth or growing like an acorn on an oak-tree; it springs from the will and character of men. But if social institutions are the collective self-expression of humanity, then, on the one hand, their place is assured in a theory of mind, which clearly must explore every mode of self-expression, and, on the other hand, the relation of theory and practice in this field is complicated by the necessary recognition that the theorist—conceived, in the Greek fashion, as legislator or statesman—is free in any given situation only within strict limits defined by the existing facts.

Since Greek philosophy never reached the point of attempting to construct a general theory of mind, the first of these two points never obtained recognition in the Greek world. The second point, the relation of political theory and practice, was cardinal to the thought of Aristotle, who shows himself here, as elsewhere, a faithful but critical exponent of Platonic principles.

When Aristotle argues that the city has its ground in human nature and contributes something essential to full manhood, he is not only true to Plato, but also asserting a principle fundamental to every subsequent attempt at a philosophical theory of the state. It seems to follow directly from this principle that the legislator or statesman requires, first and foremost, a knowledge of what completed human nature is; and the attainment of such knowledge is the goal of ethics. Thus politics is subordinated to ethics in that the end to which the political activity is directed—man's full development—is defined in the ethical inquiry. So far as Aristotle follows out this line of thought, he regards himself as occupied in his political speculations with the task of defining the social conditions which will get the best out of the best men; in short, with the construction of an ideal city. Such a conception is, no doubt, in general Platonic; but a fundamental difference between master and pupil is already apparent in this, that for Aristotle the basis of the whole political construction is a knowledge of human nature, while the Plato of the *Republic* had rested it upon philosophy, which is a knowledge of man only so far as it is a knowledge of the eternal foundations of all things.

Plato's conception of the philosopher-king involved no subordination of politics to ethics. The title of his philosopher to rule was that by the power of dialectic he had freed himself from the "wheel of birth" and reached eternal verities: his rule was thus based beyond experience. Aristotle's ethical truth pretends to no such absolute validity. For him the trained intelligence of the good man sets the goal and standard of human conduct, not by metaphysical inquiry, but as the last fruit of disciplined character and conduct, by reflection on the principles of that discipline. Since he conceived Nature, not in the modern evolutionary fashion as a story which is still being told, but as a finished system of forms which only fails to present itself as such because of defects in the matter in which it finds embodiment, Aristotle was able to postulate a single definable ideal for every man and for every city. But his conception nevertheless involves for the isolated individual complete relativity of moral judgment. He cannot by thought escape from himself; he can only come to consciousness of the principles implicit in his own character and conduct. "Each state of character has its own ideas of the noble and the pleasant, and perhaps the good man differs from others with truth to represent the predominant view up to the end of the eighteenth century, when Kant and the German idealists gave a new turn to philosophical speculation.

The Kantian revolution had reference primarily, as has already been explained, to the problem of knowledge; but in calling for an exposition of mind in its activity it could not—and did not—exclude the will as organizing individual and social life. Rather it opened a point of view from which for the first time the ethical and political inquiries became essential ingredients of the philosopher's speculative task. In passing from the traditional metaphysical topics to such questions the philosopher was no longer descending from the cool heights of theory to mingle as adviser or partisan in the confused mêlée of practical expediences. His interest and his problem remained theoretical or metaphysical. Here, as in the field of knowledge, his task is to define the nature of mind and the principles of its activity; and if the structure of society offers no evidence relevant to this task, then, though he may still be concerned with it as a citizen, it will not detain him as a philosopher. A philosophic theory of the state promises no assistance for statesmen or legislators. It is not concerned to invent exemplary systems of law or ideal types of social organization. It is attempting to detect and expound the nature of a familiar actuality, distinguishing the essential from the accidental, and so displaying the factors on which all successful societies depend. Even in claiming universality for his theorems the philosopher will be cautious, for fear of seeming to dictate to practice or set limts to human invention; but if politics is to be a field of philosophical speculation at all, its endless variety must conceal certain fundamental themes or forms which it does not exhaust and which are accessible to reflective analysis.

This attitude finds its fullest and most precise expression in writers like Hegel, who construct a comprehensive metaphysical system round the conception of Mind or Spirit; and its best exemplifications in England have been directly inspired—as, for instance, Bernard Bosanquet's *Philosophical Theory of the State*—by Hegel's example. But it has also, in a more or less modified form, gained a much wider currency among writers who have little or no sympathy with the Hegelian metaphysic. Political philosophy becomes an attempt to analyze and understand the forms of organization which men have created for themselves, and through them the spirit of the men who made and maintain them. There is a large and growing body of writing, largely the work of professed philosophers, discussing the fundamental political conceptions—the nature of the state and sovereignty, the rights and liberties of the citizen, law and property, the democratic principle and its alternatives, the principles underlying the various forms of representative government, and so on—which has, in the main, this purely theoretical object.

To some writers in this field the questions they treat seem to present themselves mainly in terms of right and wrong, as though it were a kind of extension of ethics. They are faced with problems as to the behaviour proper to the citizen as citizen, or to the duly constituted authorities as endowed with power over the citizens. For these the conception of social justice takes a prominent place, and the individual citizen, rather than the state or the citizen body, occupies the centre of the picture. For others, the nature of society and the social order is the central question, and society tends to be conceived as a being of higher complexity, built upon the lives of individuals but obeying laws of its own which could never be detected or explained by a study of the lives of its members. These two tendencies may be conveniently described as individualist and collectivist respectively. The latter has been much influenced by Rousseau's theory of a General Will, and in recent times it has often attempted to make use of the biological conception of organism. Both tendencies are clearly evident side by side in unstable equilibrium in the political writings of Herbert Spencer; but this curious internal conflict in his attitude really represents a conflict between the consequences which he drew from his general evolutionary theory of life on the one hand and the lessons of political experience as he understood it on the other.

In much of this political theory the descriptive element preponderates, often so greatly that the affiliation to any kind of philosophy remains doubtful. We have really a collection of data which may serve as a starting-point for a number of different theoretical inquiries. But, generally, the theoretical interest seems inclined to work to two main centres, which it will be worth while, in conclusion, briefly to characterize. If two more descriptive labels may be excused, I take leave to divide these theorists into Humanists and Sociologists.

The Humanists are those who regard philosophy as a systematic reflection of man upon his experience as a whole. Man is artist, poet, thinker, worshipper and much else, besides citizen or politician; in his life these various activities cross and mingle, and at least so far find unity that their variety does not destroy the unity and the continuity of his life. These activities, then, actually and—so to speak—biologically, possess a certain unity; but it is only by a prolonged and difficult reflective effort that man can hope to achieve consciousness of their unity and interrelation, and until he has achieved this he is not properly master of himself nor entitled to speak of the world to which he and his activities belong. Thus, philosophy is the culminating activity of the human mind, by which that mind completes its freedom, a kind of intellectual conscience or principle of reflection, which (to adapt Butler's words) passes in review all other principles and activities, each a partial expression of human nature, not with a view to approving and disapproving, accepting and rejecting, but with a view to assessing the place of each in the whole and the whole which they together form. In this assessment the political activity will require an emphasis precisely proportioned to its importance in human life.

The Sociologists represent a different tradition, and one more sceptical of the value of philosophy as it has been commonly practised. They have a certain sympathy with the view of philosophy, discussed earlier (in Chapter I.) as an attempt to achieve a conspectus of the sciences, and tend to advocate the method of inductive generalization. They would lay under contribution every departmental inquiry which has any light to throw upon the situation of man in society. The anthropologist and the geographer, the historian and the economist, the biologist, and the psychologist, will be asked to report his findings, and, after hearing them all, the sociologist will give judgment. The various human activities will be exhibited in relation to one another in the social scene, but with a different interest and emphasis from that of the humanist; not with a view to determining the spiritual unity of which each is a facet, but with a view to completing the picture of this planet on which human life is the highest and most complex phenomenon. The metaphysical point of view of the natural scientist is, in short, presupposed and taken as final.

CHAPTER V

CONDUCT

The philosophic account of conduct, which is known alternatively as Ethics or Moral Philosophy, has been closely connected through most of its historical development, as we saw in the last chapter, with the account of the state and its forms. Its establishment as an integral part of speculative philosophy has probably been more complete, where the general philosophical outlook made it possible, than that of politics, but the obstacles to its recognition have been much the same; and its fullest acceptance has been won from the same philosophical schools or tendencies. Therefore, much that was said in the last chapter has its obvious application here, and need not be repeated. Ethics, like politics, came into existence to meet a practical demand rather than to satisfy a speculative interest. Men had been accustomed to believe in and approve of certain lines or principles of conduct and to disapprove of others. These judgments came to be questioned. The philosopher was called in to give these beliefs a solid foundation or provide rules better founded. "No chance topic," as Socrates remarks in the course of the discussion in Plato's *Republic*, "but a question of the fashion in which a man should live."

This practical emphasis did not grow weaker, as time went on, in the Greek philosophic schools, but rather stronger. It is often said that to the Greeks generally philosophy was no mere intellectual adventure, but a way of life. This is true for Plato, for whom the phrase may be given an almost religious colouring; it is less true for Aristotle, because his belief in the supreme value of philosophic thought was combined with a disbelief in its applicability to practical problems. It is true, again, for the two most influential schools of the succeeding period, the Stoics and the Epicureans, but for them in the quite simple and direct sense, that each conceived its main task to be that of giving to its members an ethic, a rule of life, and each considered its logic and physics and metaphysics as strictly subordinated to that practical end. It was by the way of living that they preached and practised, not by any logical or metaphysical principle, that these later schools were differentiated to the Hellenistic world. In these days an ethics divorced from politics dominated the philosophic field, but its domination meant not so much a recognition of the speculative importance of the problem of conduct as an assertion of the practical importance of a right view of the world.

In this connection, the coming of Christianity was plainly a decisive factor. The direction and instruction of conduct, for which the pre-Christian world had largely looked to the philosopher, was now in the hands of the Church, which tolerated no rivals, whether they came forward in the name of religion or in the name of philosophy. The forms of religion with which the Greeks and Romans were familiar did not, for the most part, contemplate any general regulation of the life of the conformer; they only controlled his behaviour in certain localities and on special occasions; but this new religion followed its devotees into every department of life with general rules and principles of conduct. In the surviving documents of the Epicurean school more than one devoted adherent of the creed is found addressing its founder, Epicurus, as a true saviour, whose teaching has brought healing to the sick and light to the blind; and though the Stoic school had no similar personal devotion to a single figure, no reader of Marcus Aurelius or Epictetus would deny a general similarity of attitude on their part to the Stoic faith. In other respects, also, the general acceptance of Christianity was bound to make life difficult for the pagan schools of philosophy; but on this side it superseded them altogether.

If ethics is conceived as a contribution to practice, then the form of its utterances will be fundamentally imperative. The business of the ethical writer will be to tell men in general how to act, what to do. Thus, he will deliver himself either in precepts or in reasoned judgments sharing the general character of ordinary practical deliberation. Such deliberation tends to take the form of the calculation of means to an end. Something, say wealth or victory, is posited as good, as worth having or bringing about, and the question is as to the steps by which it may be most quickly and economically secured. Questions like this, which are raised and settled every day by the normal intelligent man in dealing with the particular problems which confront him, will be raised and settled in general terms by the moralist, who should be able, as the result of his inquiries, to present the practical man with a body of doctrine valid for all times and places where it finds application.

Thus, Epicurus maintained that there was a single ultimate end and good—viz., for each his own pleasure. He then discussed the ways in which pleasure might be realized; and for the greater security of his followers he enshrined the general results of this discussion in four concise maxims, which he recommended them to learn by heart and carry everywhere with them. Similarly, Jeremy Bentham, the founder of modern Utilitarianism, is chiefly occupied, in his *Principles of Morals and Legislation,* in instructing the reader how to spread and increase pleasure, how to restrict and diminish pain; and in the second edition of his book he inserts in a footnote certain " memoriter verses," which, he says " were framed in the view of lodging more effectually in the memory these points (as to the valuation of a given pleasure or pain), on which the whole fabric of morals and legislation may be seen to rest."

> " *Intense, long, certain, speedy, fruitful, pure*—
> Such marks in *pleasures* and in *pains* endure.
> Such pleasures seek, if *private* be thy end:
> If it be *public,* wide let them *extend.*
> Such *pains* avoid, whichever be thy view:
> If pains *must* come, let them *extend* to few."

On this view, ethics is describing some goal, which may be reached or approached by suitable action, and indicating the kind of action which is suitable.

Pleasure (or happiness) is the most obvious claimant to the title of general goal or end, and the hedonists or utilitarians, who argue that all action is, or should be, organized under this nation, provide the readiest and most complete examples of this conception of ethics. Complications arise when other notions are introduced, such as justice, honesty, or virtue, unless these can be strictly subordinated to the general end as contributory to it. Hedonists and utilitarians insist on their subordination. Such attributes of action and character, they argue, are rightly praised because they make for human happiness, private or public or both. Their opponents in all ages argue that this subordination is illegitimate; justice must be done, even though the heavens fall. If the demand to furnish a practical goal is accepted, and the claims of pleasure to this office are rejected, an alternative thus offers itself in the notion of virtue. In action a man not only tries to secure something for himself or others, to bring something about, but he also reveals his own character. Expression of character is thus a universal feature of all action, as well as effect on happiness; and if the notion of happiness will not provide the general criterion of success and failure which is desired, character is naturally asked to supply it. It was this alternative, in effect, which the Stoics advocated against the Epicureans, and Aristotle's reply to an earlier hedonism was not dissimilar.

Formally, both the Aristotelian and the Stoic replies conform to the convention of exhibiting the doctrine as an answer to the question, What is the supreme good with reference to which all action whatever should be tested? Aristotle laid it down at the outset, practically without discussion, that every intelligent action would and should be directed ultimately to the agent's own happiness. The Stoics said that the goal was life according to Nature. But the subsequent argument in both cases tended to show that this goal was not so much something brought about by action and justifying the expenditure of effort by which it was purchased, as a property necessarily attaching to all activity of a certain type. Human beings are, of course, in large measure immature and imperfect, and so far as they set themselves the task of growing into their full stature, in which, for the first time, the happy or natural activity will be possible to them, so far the goal is something to be approached gradually, by means different in character from the end to which they are directed. But, so far as moral maturity is attained, so far as the agent possesses virtue, means differ from end only as particular from universal; the particular act is that specification of happy or natural activity which the actual situation makes possible. Thus the practical activity is really asserted to have its value in itself, not in something else which it produces. To the question, "What ought I to try to attain by action?" we get the answer, "Your action is judged and valued, if it is judged and valued rightly, not by what it attains, but by its own intrinsic character." The presentation of the doctrine in terms of an ultimate end becomes inappropriate and even misleading.

This is the ground of the accusation of inconsistency which Herbert Spencer brings against Aristotle. He says that in word Aristotle makes happiness his end, but in fact his end is virtue. But Aristotle's happiness is not virtue, but virtuous activity; and there is no inconsistency. To live is to be active in certain definable ways, and the view that happiness of life is realized so far as these activities maintain certain forms is at least as plausible as the view that it depends upon their assuring certain results. What we really have, comparing Aristotle or Zeno with his opponents, is a fundamental change of direction partly concealed by a deceptive similarity of terminology. Attention is transferred from the causal efficacy of action, considered as an interference with events, to the significance of action as the expression of a personality. Both aspects of action are real enough; but when action is considered as causally effective, its value is found in something other than itself: when action is considered as expressive of character, it cannot but be valued according to the character expressed in it. Much of the divergence of ethical theories, both ancient and modern, may be accounted for by a difference in the adjustment of these two estimates to one another.

Modern philosophy in its early days was not much concerned with the problem of conduct. In modern Europe, as in ancient Greece, natural science and metaphysics claimed attention first, and, emerging from them, the problem of knowledge. On the practical side, politics preceded ethics, and the conception of a law of Nature seemed to offer a common foundation for the two inquiries. It was not till the eighteenth century that Ethics cut any great figure before the world, and as it came into prominence its connection with politics became more distant. The astonishing outburst of ethical writing which marks the eighteenth century (particularly the first half of it) in England was occasioned by the apparent weakening of moral principle in the life of the time immediately preceding. The writers of this period conceived themselves, almost without exception, as engaged in re-establishing morality on new foundations, independent equally of religious and political authority, and directed their arguments primarily against the teachers of moral scepticism, particularly Machiavelli, Hobbes, Rochefoucauld, to whom Epicurus is often added, and, after the publication of the *Fable of the Bees* (1723), the Dutch-English physician, Bernard Mandeville. Machiavelli was taken as representing the view that any crime is justified when the interest of the state is served by it; Hobbes, that morality is the creature of law; Rochefoucauld, that all actions are the expression of self-interest, more or less disguised; while Mandeville avowed it his aim to prove "private vices public benefits." Inevitably the defenders of morality became involved in controversy with one another. For a number of them the ethical inquiry was part of a general philosophic enterprise; for a few (like David Hume) the theoretical interest clearly outweighed the practical. But in the main this writing is practical in its aim; it is directed to restoring men's faith in moral principles, to convincing men by argument that life need not be mere greed and selfishness, even where law and religion lose their hold on men.

The situation from which the eighteenth-century moralists started was thus not unlike the situation from which Socrates is represented as starting in Plato's *Republic,* when Thrasymachus has said his say and Glaucon and Adeimantus have exerted themselves to show the need of a more thorough answer than is usually given to such criticisms of morality. But the development of the reply is very different in the two cases. Plato's famous argument retains throughout the closest touch with the social context, and seeks to exhibit morality as the organizing principle on which the healthy life of men and cities depends. By comparison Shaftesbury and Clarke, Hutcheson and Butler, seem *to be working in a small and restricted field. Society is* presupposed, no doubt, but its organization and character are not in question; and it often seems that the discussion touches the individual only in an isolable department of his life and thought. Their problem was at bottom a practical problem, as we have said, but it was nothing like so directly and urgently practical as that of the Greeks. There were other supports for morality besides philosophy in the eighteenth century, and the philosopher was not called upon, as in ancient Greece, to formulate an ideal of life by which men could live. He was not asked to enlighten the will by providing a sovereign criterion of good and bad. Rather he was expected and tended to assume that every normal man had in himself the power to make such distinctions accurately, if he would but use it; and the question at issue was as to the origin, nature, and value of this power. What morality means in practice tends to be taken as known. It is not so much false advice that has to be countered, as misinterpretations which distort the spirit and depreciate the value of the moral judgment.

When, therefore, the historian of philosophy attempts to classify the British Moralists according to the general tendency of their teaching, his division depends, not on the end recommended, but on the *nature of the power by which men are thought to* discriminate between good and its opposite. Some maintained that this distinction was discoverable by thought and reasoning, like any other fundamental distinction between things. Others maintained that a special sense, which they called a moral sense, was needed to account for it. Such a classification is justified, since it emphasizes the point on which in most cases the chief emphasis falls. It cannot, however, be carried through completely, because a gradual revival of hedonism, which gathered strength as the century went on, produced writers not much interested in this question, but chiefly concerned to show that action might be interpreted as a search for pleasure, without any danger or discredit to morality. Of this movement was ultimately born the utilitarian doctrine which dominated the early nineteenth century.

Long before the close of the eighteenth century the original impulse which had given this ethical speculation its vigour had failed. There was in England no metaphysical synthesis capable of continuing the discussion on broad philosophical lines, and the movement towards psychology which was heralded by the writings of Hume and Adam Smith did not lead to important issues in the hands of their successors. It was not until after the middle of the nineteenth century that ethical thought in England recovered its vitality, and then chiefly under the influence of Kant's ambitious attempt to bring the whole of human experience within the orbit of the Critical Philosophy.

In the second and third *Critiques* Kant set himself to complete the scheme initiated in the *Critique of Pure Reason;* and his contribution to ethics has an importance not less decisive than his contribution to metaphysics. Croce says that " after Kant no serious philosopher can be anything but a Kantian in ethics." This may go too far; but with regard to his *conception* of ethics, which is what we are here more particularly concerned with, it is probably true to say that it has been the starting-point of all subsequent attempts at a philosophy of conduct.

Ethics is conceived by Kant as a necessary part of philosophy. In passing from the *Critique of Pure Reason* to the *Critique of Practical Reason* he is not passing from a theoretical to a practical enterprise; he is merely opening another chapter in the great theoretical task of revealing the presuppositions on which human experience rests. The new chapter has for subject will instead of thought, or, as he prefers to say, reason in its practical as opposed to its theoretical use. The task is in principle the same as that of the first *Critique*. He was not there trying to improve or reform the practice of thinking, either in science or in everyday life; he was trying to show what it meant or involved. So here he is not giving directions to conduct. The imperatives in which he seeks to define the moral law are not precepts, rules of life which he recommends for adoption; they claim to be the principles actually operative in conduct so far as it is good. The first *Critique*, again, was not a psychological investigation of the equipment which man possesses for the discovery of truth, taking mind as one object among others in the context of the world of science or common sense, and hoping to lead ultimately to the improved control and enhanced utility of the instrument. Mind was investigated in its cognitive activity as creative of this real world and finding expression in its creation. Kant was fairly familiar with the writings of the British Moralists, and he had no inclination to follow them into the psychology of conduct into which their thought tended to develop. Such an inquiry might well have its value, but it was not to the purpose of his argument. What his argument needed, and what he tried to give, was an account of the metaphysical implications of the practical activity. The essential point was to grasp the nature of the practical activity, considered in itself and in its relation to the theoretical, and to exhibit the one as the necessary complement of the other. The unity of philosophy demands that the theory of knowledge and the theory of conduct shall be interdependent, and that both shall issue in an account of the ultimate reality.

According to this Kantian conception, ethics is incorporated in philosophy as it never had been before: philosophic ethics come into being. There are, of course, other philosophies besides that of Kant; and there are many other conceptions of ethics. But at that point we will leave for the present the problem of conduct.

CHAPTER VI

RELIGION

If the conception of philosophy which we have connected primarily with the name of Kant is a sound one, if the philosopher's task is that of examining human experience in its main varieties with a view to exhibiting the metaphysical implications of each and their relations to one another, it would seem that the religious experience could hardly fail to make an irresistible claim for consideration. Historically there are few influences stronger or more pervasive than that of religion; and the fact that in the name of religion at all times and in every country statements are made about the nature of reality which are formally indistinguishable from philosophical statements would seem to constitute a challenge to the philosopher which he could hardly ignore. Thus one may ask whether there ought not to be a Critique of the Religious Consciousness subjecting religion to the same kind of examination as thought and conduct.

Kant lived at a time when the Deistic movement had accustomed men to the idea that the philosopher was entitled to be heard on the subject of religion. Deism tended, it is true, to be confused in the popular mind with "free thought" and atheism; but it was actually a claim, and in many cases at least a perfectly sincere claim, that religious truth was accessible to the human reason quite independently of any historical event or express revelation of God. The attitude is well instanced in the titles of two celebrated English books, which were landmarks in the controversy—John Toland's *Christianity not Mysterious* (1696) and Matthew Tindal's *Christianity as Old as the Creation* (1730). What fails to find expression in either title is the tendency, which became particularly marked in Tindal's book, to bring religion into the closest possible connection with—one might, perhaps, say, into dependence upon—morality. (This tendency is very prominent in Kant's writings concerning religion.) The controversies were dying down somewhat when Kant came to maturity; but the ferment was still working; and so far the situation was favourable for a bold restatement of the relation of philosophy to religion and an assessment of the contribution of religion to human life and thought.

In another sense, however, the situation was much less favourable. It is difficult to speak confidently about the intimate life of past generations, but it seems to be fairly certain that in Kant's day religion itself was at a rather low ebb, and that these attempts to formulate a religion of reason were to some extent a symptom and a confession of that state of things. Further, the Deistic movement did not succeed, for all its vigour, in throwing up thinkers of sufficient calibre to stimulate Kant's speculative genius to its highest flights. The controversy was, in fact, something of a failure, in the sense that it left no permanent mark either on philosophy or on religion. The renewal of the religious spirit was to come from the side of practice; but it was precisely the detachment from religious practice that was the essential weakness of the Deistic movement. Reason cannot create out of nothing. If there is a "natural light," it is surely such that it will not shine until the appropriate experience gives it occasion. Only a barren dialectic can result from a mere examination of theological concepts before the bar of reason. If thought is to make progress, it must be in touch with experience. Therefore these exponents of the religion of reason, finding insufficient foundations for their speculations in religious experience, fell back on to the more solid ground of moral experience. But this is only an evasion of the problem; for, however closely religion and morality are intertwined in men's lives, religion has its own source, which is independent of that of morality, and neither is an imperfect activity which is continued and completed in the other.

Philosophy has never lived on very easy terms with religion. The Greek philosophers, from early times, were often at odds with the current theology for its inadequate conception of Deity, directing their attacks chiefly against the poets, who, in the absence of a priesthood, were the chief repository of religious doctrine. This is the "ancient feud," which Plato speaks of as separating philosophy and poetry. The philosophers tended to appropriate the language of religion to themselves. On the whole, the Greek philosopher, while recognizing a place for religion and accepting the conception of the Divine, found himself dissatisfied with the existing forms of religion and tried after a fashion to frame a religion for himself. He would sometimes see in current beliefs and usages half-realized intuitions of important truths. Sometimes, like Epicurus, he would see rather a mass of superstition, darkening life and death, from which men called for deliverance. Every reader of Lucretius will remember his passionate plea for this freedom. No Greek pre-Christian philosopher could point to a religious communion, existing independently of his school, as having a call upon his service in thought and deed. He would probably recognize and scrupulously fulfil such ritual duties as custom or order required of him: loyalty to the city would be felt as demanding this. Nevertheless, the freedom of his speculation in religious and political matters, together with the tendency of philosophical schools to claim some special privileged access to the gods, would be likely to earn him the name of an innovator in religion, or an enemy of it, and a bad citizen.

When Christianity conquered the western world, new difficulties beset the relation of philosophy and religion. As a universal religion with uniform tenets and usages, Christianity allowed the philosopher no escape from the laws and customs of the city to a law of Nature in which all varieties of practice and doctrine found their common source. As a dogmatic religion with an organized priesthood, it was prepared to expound its own revelation of God and unwilling to tolerate rival interpretations. It was prepared to use the force of the state to punish and silence any whose teaching might seem to conflict with or endanger the fundamental verities of which it was the custodian. The ingenuity of the human intellect is considerable, and in various ways the difficulty may be and has been more or less satisfactorily surmounted; but there must always surely be a certain tension between the spirit of free inquiry, which is philosophy, and an organization which asks men, as it were, at the point of a pistol to accept certain statements as enshrining final and unquestionable truth. The difficulty was not fully felt so long as philosophy remained in the hands of the priesthood, and before the philosophy of Greece was rediscovered in what we call the Renaissance, but with the arrival of the New Learning it became acute. At some times and places there was more, at others less, freedom for thought; but generally in the early days of modern philosophy a philosophical examination of religion was out of the question. In view of the real dangers created by religious bigotry, reinforced by the thinker's own loyalty to the Church of his fathers, a certain evasiveness came into philosophic thought on this side which sometimes gave the impression of dishonesty or deceit.

It is part of the evidence for the truth, or at least for the necessity, of a humanistic philosophy that an influence cannot be escaped by the mere refusal to face it. Whatever belongs to the human spirit will struggle for expression in the philosopher's view of the world. A given thinker may decline the direct examination of conduct or of society, or of the æsthetic or of the religious interest; but, avowed or unavowed, these represent forces at work upon his own life. And the unity of the human mind is such that the degree of their efficiency cannot be measured by the extent of the activities specifically devoted to them. Each of the main human activities refuses restriction to a mere department and claims, in a sense, the whole of life. The artist is quite aware that there are other activities besides his, and that for some they may be more important than art; but he is also deeply conscious that in his work as poet or painter or musician he is striving to express in his own special fashion every side of human nature, and that so far as he fails to achieve this universality his effort falls short of success. And if such a demand presses half unconsciously on the artist, it will press with all its force on the thought of the philosopher, whose declared aim is the knowledge of the universal. According to the humanist view, knowledge of the universal is only achievable in and through the knowledge of man; philosophy is the culminating effort of human self-consciousness. Here every factor of human nature should find avowed expression: the presence of any surd or hidden determinant can be only a sign of defect and defeat. Philosophy must aim at completeness and remain open on all sides. A factor which is not reckoned with is bound to disturb the reckoning.

It is therefore not surprising to find that religion has, in fact, exercised a continuous and important influence on philosophic doctrine. It has been specially influential at the most vital point, upon the general conception of the world order which forms the framework of the whole. From the earliest times the philosopher has felt it incumbent on him to give some philosophical definition to the notion of God and the divine. The term to be defined is borrowed, of course, from the language of religion; but, as treated by the philosopher, it acquires a curious unreality from his reluctance to draw any content for it from religious experience. A philosopher might as well, one would think, seek to define will without reference to action, or art in abstraction from artistic products and production. A religious reader who searches the writings of the philosophers for light on the conception of God is apt, in consequence, to be baffled and disappointed. He sees no evidence that the Being of whom the philosopher writes is the same Being to whom he prays and in whose providence he trusts. The philosophic reader, on the other hand, is equally baffled. He finds the path of the argument crossed by a concept which is not fully in the power of the argument, but rises richly equipped from some unavowed source with attributes, like omnipotence and omniscience, which must apparently be taken on trust.

The concepts with which the philosopher is accustomed to deal are mostly of one of three kinds. There are those, like tables and chairs and the common animal, vegetable, and mineral classes, which have their assured and familiar place in the world of common sense. They are the known and trusted signposts of man's practical life, in which, as such, the philosopher has no great interest and with which he would not venture to take any great liberties. Then there are others, like triangle and circle, atom and electron, neurone and synapse, which have their place no less firmly established and much more carefully defined in some recognized department of knowledge as the tried and accepted tools of inquiry within a given field. With these, again, he is not free to take liberties. If the philosopher uses them at all, he must use them according to the established convention of the inquiry to which they belong. If he questions or criticizes them it is as an expert in that inquiry, not as a philosopher. Finally, there are those which belong to philosophy itself, and in dealing with these the philosopher claims his freedom to reshape and redefine according to the needs of his argument. Such are the ultimate categories of thought in its various departments, and terms, like individuality or reality itself, which by their very nature override the boundaries of departments and pervade them all.

Now, the conception of God, as it figures in philosophy, is apt to oscillate uncomfortably between these classes. It owes its place in our vocabulary to the pious usage and belief of countless generations; it has received a kind of definition in creeds and theologies; and at times at least in many philosophies it seems to become a purely philosophic conception with which the philosopher may deal as he pleases. The substitution for the term "God" of some term invented by philosophers, such as the Unconditioned or the Absolute, relieves but does not remove the difficulty. In this way the associations of a familiar word are avoided, and this is, no doubt, a gain so far as these are irrelevant and tend to arouse illegitimate expectations. But if the new term is felt to be a mere substitute for the old, and if the metaphysical conception for which it stands in its philosophic context is really of religious origin, the gain is at bottom unreal.

The precise nature and direction of the influence which religious belief has exercised upon philosophical thought must obviously be difficult to define. But it seems reasonable to suppose that in general the religious spirit has been continuously influential in support of an interpretation of experience different from what the spirit of scientific analysis or of historical research, if these had developed without it, would have encouraged. The conception of an eternal world order, of which the temporal series is in some sense the expression or manifestation, is one foreign equally to science and to history; and its persistence in philosophy must be connected with man's belief in the divine. A certain other-worldliness has always been implicit in the religious spirit, an emphasis on the unseen as against the seen, an assertion of the impossibility of finding a true centre for life or thought by the mere scrutiny of the evidence of the senses or by the most far-sighted handling of the practical problem in the light of future probabilities. Plato's powerful advocacy of the view that knowledge and happiness depend on finding a firm anchorage for thought and conduct beyond time and change was deeply influenced by the religious spirit of his time and has appealed profoundly to the religious spirit of later times.

In the field of metaphysics such ideas must meet and settle their account with other ideas drawn from other sources; and especially with ideas drawn from the two fields mentioned above, science and history, the fields of inquiry most intensively and most successfully cultivated in the nineteenth century. It was a characteristic expression of the results for a certain section of nineteenth-century thought when Auguste Comte and his positivist followers asked that the development of civilization should be conceived in terms of their law of the Three Stages. First came the theological stage in which men personified the controlling forces as gods; then the metaphysical, in which they substituted for personal gods such conceptual abstractions as the Love and Hate of Empedocles or the eternal forms of Plato. Finally, thought becomes positive, accepting the scientific method by which experience is made its own test. A religion of humanity in this last stage will enable men still to satisfy the religious impulse without passing beyond the limits of experience. What is worshipped is the "Great Being," the collective achievement of men, what man is and what man is still to be, as presaged or exemplified in a Socrates, a Moses, a Jesus, and the other great prophets and benefactors of the race. The thought of anything perfect, complete, or absolute is thus to be put aside as a childish thing. Philosophy can provide no pole-star, no unshakable basis of calculation; all is relative. Comparing one thing with another and distinguishing better from worse, we can hope to see and work our way to a better still. The direction already followed gives the clue to the direction to be pursued. Science and history have the last word.

This conflict of ideas finds its most general expression in the various attitudes taken by philosophers to the question of the reality of Time. If experience is to provide its own explanation, space and time will be the framework of reality; and if space and time are taken as thus ultimate, every absolute seems to be put beyond man's reach. The most that thought can hope for is to extend ever farther its conquests into the illimitable past and so to meet with increased assurance the impenetrable future, and by means of evermore subtle analysis of the immediately presented to conjecture with increasing precision the nature of the infinite expanses of space which surround it on every side. The historical series as outlined by astronomy, geology, and biology, and as presented in greater detail for a few thousand years by history proper, is only an extract, and an extract from a process without beginning or end. It is not the part of a whole, from which one might hope conceivably to reconstruct in thought the whole to which it belongs. There is no whole, and the thought of one is just the dream of an absolute which has to be surrendered. But such a theory has in the end to fall back into relativity or scepticism. It cannot consistently speak of ultimates or of reality. If it asserts that space and time are the framework of reality, it is in danger of erecting space and time—or, in the term now fashionable, space-time—into an absolute, an offence aggravated by the inability of space-time to prove its own absoluteness by ordering all else within itself. It cannot even consistently say that space-time is ultimate for us, that man can interpret experience in no other terms; it can at most say that the thought of the time appears to be thus limited. But that is to deny the fact or the present possibility of a metaphysic; it is to substitute a world sequence which cannot be reduced to a world series for a world order.

The opposition to such relativity and positivism, the belief in an absolute which is a discoverable timeless world order, has been a chief inspiration of philosophy from the earliest times, and it has been largely nourished and sustained by the religious spirit. Religion has nourished equally the opposition in the field of ethics to the doctrines of hedonism and utilitarianism, which are the positivistic interpretations of conduct. There have, of course, been religious men who have been hedonists and utilitarians; equally, there have been anti-hedonists and anti-utilitarians who would not have called themselves religious. There have been, and are still at the present day, thinkers who seek to reconcile an absolutist philosophy with the reality of time. But in the main the general idealist tradition refuses to accept space and time as ultimate and seeks to expound a timeless world order. It would interpret human experience in terms of a whole or system. In so doing it may be said, however little direct connection it may have with religious teaching or practice, to draw its appeal largely from that source.

CHAPTER VII

VALUE

ATTEMPTS have been frequently made in recent times to group together several of the problems which we have passed in review, with others which we have not treated or merely alluded to in passing, under the notion of Value, and to demand of philosophy, as at least an important part of its task, a Theory of Value. This appears to be a growing tendency, and in its most extreme form it claims Value as the special and peculiar object of philosophical thinking and therefore presumably as the organizing principle of reality.

"Every art," says Aristotle, "and every inquiry, and similarly every action and pursuit, is thought to aim at some good; and for this reason the good has rightly been declared to be that at which all things aim." This is the sentence with which Aristotle begins his treatment of ethical and political questions. In his *Ethics* and *Politics* Aristotle is defining a good man, a good citizen, and a good city, and discussing the conditions on which their existence depends. Similarly, when he turns to poetry in the *Poetics*, he describes his aim at the outset as that of determining the function of the various kinds of poetry and the conditions, in respect of structure and composition, on which the existence of good poetry depends. In such cases good and, with good, ought enter as fundamental factors into the discussion. There is an activity with its characteristic aim, ultimate for anyone engaged in the activity and justifying the detail of it, and ought arises so far as the conditions of achievement can be defined. Each activity has its own good, and in terms of that good defines its own obligations. Is there a general good at which, perhaps somewhat obscurely or unconsciously, all activities aim, or must each activity retain its autonomy? The statement from which we started suggests that there is; and Aristotle's master, Plato, when he called the sovereign principle of reality the Form of the Good, would seem to assert that good and ought are needed, not merely to unify human activities, but to make sense of the world. A good is what has value in itself and bestows value on other things: its recognition generates an ought. We seem to come near to Wordsworth's apostrophe to Duty:

"Thou dost preserve the stars from wrong,
And the most ancient heavens through thee are fresh
and strong."

The method of approach through the notion of good, as something to be achieved and maintained, tends to set the problem in all these cases as one of defining an ideal. The materials out of which the ideal is to be constructed are, no doubt, in a sense to be sought within the actual. Logic does not set out to make men logical for the first time; and the ideal state is not free improvisation. The ideal will be presented as something which, once formulated, is seen to have been struggling all the time for expression in the actual; and the best proof that it is correctly formulated will be its promise of removing the chief defects of existing examples while preserving or enhancing their characteristic merits. It was in some such sense as this that Plato and Aristotle understood their own attempts to construct an ideal city. Now, assuming that there is a real unity in these various human activities, the general problem to which they all contribute will be, in the widest sense of the word, a practical problem. It will be that of defining the order and structure of a life in which each finds its due place.

Such considerations point towards a development which did not actually take shape in the ancient world, but has been promised, if not satisfactorily achieved, by some modern writers. There are specific values attaching to conduct which are distinct from any others, and with these it is the special task of ethics to deal. But since every life must include some relation to other values than these, ethics would appear to require for its completion an inquiry of wider scope, a general theory of values, an axiology, as it is sometimes called, which will not merely bring the different forms of value into relation to one another, but also investigate their metaphysical foundations. A prominent place in this connection is often given to religion, sometimes as co-ordinate with these other activities, as revealing a distinctive good and value comparable with the values of art and conduct, more often, perhaps, as an activity of a different or higher order in which all human values find confirmation by their reference to a ground beyond experience. The simple, practical conception, however, which we have been following out is inadequate to explain modern theories of value. The whole intellectual situation has profoundly altered, and it is necessary to take other factors into account.

Here, as always in comparing modern with ancient ideas, it is necessary to remember the triumphant progress of modern science and the almost irresistible authority of its decrees. An occasional philosopher may question and dispute; but in general science is taken as giving us the facts, as telling us what the world is. Art and morality and religion, so far as they tell us something else, are telling us what the world is not, but might be; an ideal, if you like—that is, what we should like it to be. That the world often shows itself callous to human suffering and inhospitable to human ideals is no modern discovery; but in ancient times the belief could still be held that man was the favourite child of Nature and that this earth was the centre of the whole. Copernican and Darwinian revolutions have changed all that.

Science now shows us man as the precarious and accidental tenant of an infinitesimal estate. As to the inhospitality of Nature to his dreams and aspirations, modern literature is full of declamations, bitter, pathetic, or resigned, upon this theme. From the philosophers we have, for example, J. S. Mill's essay on "Nature" in his *Three Essays on Religion*, and, more recently, Mr. Bertrand Russell's *The Free Man's Worship*. To Mill Nature, that is the world as science reveals it, is an enemy with whom man is perpetually at war; to Mr. Russell it is omnipotent matter, "blind to good and evil, reckless of destruction," a field of irresistible forces which "tolerate for a moment" man's vagaries. The sting is that this world is one to which thought and consciousness, if they make any contribution at all, make one that is small beyond reckoning, and in which the things that stimulate the human mind to ardours and endurances have, in their own right, no place at all. Thus the problem is, beside the "fact" to find a place for value. And here comes in religion, with its assurance that matter is not omnipotent, that life is no mere accident, and that, however vast the world may be, its government is not indifferent to the aspirations of the least thing in it.

In reference to this modern conflict we may usefully consider briefly two points: (1) The possibility of a general theory of value; (2) the claim that value is the clue to the nature of reality.

A general theory of value has to begin by determining what the values are. In order to simplify the question and avoid difficulties, let us take as the typical (though not necessarily the sole) values the trio: truth, goodness, beauty. These are the values characteristic of the three spheres: the theoretical, the practical, and the æsthetic, respectively. What promise, we may ask, is there of an advance in the understanding of each of these when we bring them together by means of the more general term, value?

We may note that the bringing of them thus together is not an uncontroversial operation. In particular the co-ordination of truth with goodness and beauty is questioned. The true statement, it will be said, is a statement of fact, which is objective, no personal or subjective affair like our reaction to poetry or natural beauty. Whatever may be thought to be the correct answer to such an objection, it will be seen that the very existence of the objection is a refutation of the view that the introduction of the term "value" is nothing more than a verbal complication. Clearly, to bring them together is at least to invite comparison between them. Such comparisons may well be highly suggestive, revealing perhaps a feature in one sphere which might well have escaped observation altogether unless an analogy from another sphere had brought it to light, or forcing common sense out of its prejudices, especially out of those created by its constant tendency to exaggerate differences and over-emphasize the practically significant. But mere likeness, with the possibility of fruitful analogies, is not enough. If a real advance is to come from bringing these things together, there must be a genuine unity underlying their differences, which a theory of value will detect and expound.

It is open to doubt whether the notion of value will bear the weight which thus falls on it. Values are often said to be qualities; and sometimes philosophers, having discriminated primary and secondary qualities, call them tertiary qualities. Now the ground of a quality, where it is truly attributed, is found in the nature of the thing which possesses it. It would seem, then, that the unity underlying these different values can only be exhibited by exhibiting the underlying unity of the different things which have them. What, then, is it that is true, or good, or beautiful? A statement is true, an act is good, a natural object or a work of art (these possibly in rather different senses) is beautiful. These are not the only applications of the terms. True is also applied to facts and to reality. Philosophers have maintained that only pleasure is strictly good; and poets have claimed the identity of beauty with truth. But let us suppose that these are the standard or fundamental references from which the others are derivatives or deviations. It is, then, the unity of these valuable things, if we are right, that has to be shown. It seems plain that we may consider statements, acts, works of art, as long as we please—in themselves and in comparison with one another—and never get beyond the structure of each and, as the result of comparison, certain analogies between them, until we regard them as expressions of the human spirit, when at once we open the prospect of seeing their unity in their common ground.

We are thus brought back to the philosophy of mind. And when the question is transferred to this field, we begin to ask whether, in the last resort, what is valued is not always fundamentally an activity of mind. Certainly in all these cases there is involved a reference to the not-self. Truth is discovered when the true statement is made; the good act derives its meaning from its causal efficacy on a given situation; the work of art in which beauty is found stands there for all to see. Some say that the value, this so-called tertiary quality, is neither in the thing said to be valued nor in the mind which attributes value to it, but is a relation between the two. But, if so, it is surely a one-sided relation, involving for the mind activity and effort; and the significance of the statement or work of art is as a record of such effort and an occasion for its repetition. We suspect, then, that values are not merely *for* a mind, but also *of* a mind, as pertaining to it, their recognition in various forms being at bottom nothing but the self-affirmation of self-conscious mind in its fruitful activity.

The relation of the various forms of spiritual activity to one another is an interesting and important question; and here there is a certain danger in the introduction of the term "value" in so far as it tempts us to force upon the operations of mind in these various fields a symmetry which the facts do not warrant. This may be due to a logical prejudice, based on traditional notions of genus and species and their relation. But, in any case, the danger is much diminished when the notion of value is subordinated to that of mind, and the concrete unity of mind is substituted as the field of investigation for the abstraction of value. We conclude, then, on this first question of the possibility of a general theory of value, that if it is possible, it is possible within a theory of mind; in any other context we question its ability to make good.

We now turn to the second question—the claim that value is the clue to the nature of reality. This claim may be so presented as to seem merely a groundless optimism. In experience the values are everywhere faced with their opposites, the disvalues or unvalues; truth is at war with falsehood, good with evil, beauty with ugliness. The realization of truth or good or beauty is felt as a victory over the enemy in a warfare that has no conceivable end. Thus the enemy seems to be assured a permanent place in the scheme of things. So Socrates says in Plato's *Theætetus*—" Evils, Theodorus, can never pass away; for there must always remain something that is antagonistic to good. . . . Of necessity, they haunt this mortal nature and this earthly sphere." According as we are pessimists or optimists we shall believe that the one or the other has the upper hand in this secular conflict. To assert that the values are the clue to reality is to go far beyond such relative optimism as as this. It is to deny in some sense the very existence of the enemy; to assert that only the good, the valuable, is real. The very same passage in the *Theætetus* suggests some such view, when Socrates says that evils " have no place among the gods in heaven," and that it is possible for men to escape from earth to heaven, and by holiness, justice, and wisdom to " become like God." To say that reality has no room but for what is true and good and beautiful—what is this, it will be asked, but the arbitrary substantiation of our desires, the reiteration in the face of all the evidence of an "it *must* be so"? The obvious retort is that, however precious these things may be, they are not thereby proved more real than anything else, and that those who aim at knowledge prefer fact undiluted, not distorted for their comfort or edification.

But this interpretation depends on keeping to the common-sense scheme with its framework of space-time. Within that scheme values remain demands and desires, at war with the facts. The most that can be done for them is to give them their place in the historical scheme, to show them as products of evolution, and possibly to demonstrate their solidity as falling on the central line of development and pointing the way to further advance. Such demonstrations, however, will never give us value as the clue to reality. They will at most assure us that where the values are realized we have *pro tanto* a more solid, durable, effective existent than where they are not. If value is to become the central metaphysical conception, its opposition to fact must be broken down; existence, as these writers sometimes say, must be placed among the values, and the empirical order must be viewed as the partial and fragmentary manifestation of an eternal order on which it depends. If the empirical order is retained as ultimate, one can only hope to find a place in existence for values; if its ultimateness is denied, then it may be possible to order empirical existents under the notion of value in a timeless reality. It seems that the general line of argument must be something like this. The general conception of an eternal order being established by the inability of experience to satisfy without its aid those conditions of intelligibility on which the mind insists, it will be argued that the only legitimate ground for ascribing any positive character to that eternal order is the nature of truth, goodness, beauty—of the supreme values apprehended in finite human experience. In actual human experience, no doubt, these are only fitfully revealed, mixed with defect, and in conflict with their opposites. That is not denied. It is not asserted that in "this earthly sphere" the good reigns supreme and unopposed, nor even that its increased predominance over evil is assured. But it is asserted that this is not the last word; that ultimately what is is good; and that, while knowledge may be possible after a fashion on other terms, to understand the world would be to see it as good.

A philosophy developed on some such lines as this could claim a long and imposing ancestry; and, indeed, some of the theorists of value almost boast that nothing is new in their theories but the word, and that in substance they are merely expounding afresh the burden of the great central philosophical tradition. Again, a doubt arises whether the new term has any important advantages. Croce has suggested that philosophy has only taken refuge in values because the empiric has been allowed illegitimately to usurp for his own classificatory abstractions terms like "fact" and "actuality," much as an honest man might be led to change his name by reason of the disgraceful behaviour of a member of his family. It is high time, he thinks, that philosophy claimed its rights and took for its own the solid ground of fact instead of contenting itself, whether out of pride or modesty, with "airy values." The protest is not without its justification. But a man may also change his name to prevent awkward confusion of identity; and empirical truth in its place is entitled to every respect. So that if the new name is a suitable one, the change may be welcomed. A suspicion of evasiveness, however, still clings to a change of name, whatever its justification. The difficulty may be illustrated by the promised reduction of existence to value; and this will give us the opportunity of asserting once more the main point for which we are here concerned.

Existence, we are told, is to be reduced to value or shown to involve valuation. This thesis, as it stands, might cover an attempt to confound the practical and theoretical interests by asserting, *e.g.*, that the true is the useful. But that means the end of truth. Assuming, then, the autonomy of the theoretic interest, as directed to its own specific object, truth, we shall expect to find it maintained that when we perceive and interpret our perceptions, thus acquainting ourselves with the existent, we are not merely, as we are apt to think, registering a given; we are achieving a special value—viz., truth—in a mental activity as free as that in which we appreciate the features of a poem or a play. So far, so good. We have an intelligible protest against the view that reality is something stretched out before the mind in space and time, and merely recorded by it—a protest akin to Kant's protest against the view that mind had to conform to objects. But what follows from the point of view of value-metaphysics? Philosophy is a theoretical adventure. It is out for truth, and will not accept beauty or goodness instead. We may remind ourselves, of course, that things beautiful and good exist and are open to inspection, and also that for many philosophers existence is only a restricted mode of being, which may be distinguished from validity or subsistence within the total reality. But truth is not truth except so far as its attainment means understanding reality, and all distinctions necessary to that understanding must fall within its scope. Beauty and goodness must be known if they are to contribute to metaphysics; and by some doctrine of degrees of truth and reality the different orders of being must be finally brought to the unity which thought demands.

This brings us to our last point. It does not seem possible to find solid ground for such a metaphysic except in mind or spirit. A reality in which value is fundamental must be a spiritual reality.

CHAPTER VIII

REALISM

As fact is opposed to value, so real is opposed to ideal and realism to idealism. The modern movement called realism is primarily a movement of revolt against those general philosophical developments which it has been the chief aim of the preceding sections to make intelligible. Their tendency was towards the conception of philosophy as the attempt to exhibit a timeless spiritual system, its departments corresponding to the different facets of man's spiritual life, each investigated for the light it might throw on the nature of this system. This may be called generally the idealist tradition. It is met by its opposite in realism.

The negative emphasis can hardly be escaped if we try to seize the meaning of the term Realism itself. Idealism is readily interpreted as involving the assertion that reality is in some sense ideal. But clearly there are not two parties in philosophy, one of which maintains that reality is ideal and the other that it is real. Real must have a more restricted reference, determined by the controversy in which it occurs. The name "realism" was first applied to the view that universals have a reality independent of the individual things which exemplify them, as opposed to the nominalism which denied this. The question of dependence on a thinking mind entered into this controversy only as a secondary incident. The modern development brings mind into the forefront, and thus this question becomes primary, while the question of the status of universals has become a secondary issue. Realism now asserts a reality independent of mind, as opposed to the doctrine which views reality as mind-dependent or identifies mind and reality. Obviously the general aim of a realistic, as of any other, philosopher will be to give an account, so far as may be, of reality in its completeness; but the special feature of his account is not the assertion of a particular kind of non-mental reality, but the attempt to reduce mind to its proper subordinate place in the scheme of things.

From this general attitude important consequences follow: It will be convenient to exhibit these by reviewing shortly the main topics discussed in the preceding sections, keeping to the same order of treatment.

(I) *Nature.*—One would expect realism to tend towards naturalism. Resisting the pretensions of mind, it will necessarily exalt proportionately whatever is not mind, which is, traditionally, matter or body. The authoritative account of matter is to be found in physics and natural science. In exalting matter, then, it will exalt science. The relation of matter to mind has, of course, to be determined; and there are sciences, such as biology and physiology, which to some extent seek to determine it, on the general presumption that in the study of matter the conditions will be revealed on which the intermittent occurrence of mind depends. The realist will be inclined to derive his general idea of the framework of reality from the sciences, and to attempt to find for mind in this sense a place in Nature. Naturalism is commonly taken to stand for a view which regards Nature as ultimate and self-explaining, and resists the introduction of any supernatural element. The negative part of this, modified to suit the philosophical context, would be resistance to the conception of a timeless order on which the temporal is said to depend, or, positively, an acceptance of the spatio-temporal framework as metaphysically sufficient and satisfactory.

The realist conception of the relation of philosophy to science will differ widely from the view expressed at the end of our first section. Philosophy was there credited mainly with what might be described as a formal interest in the sciences, being occupied in finding for science its place in the life of the mind.

Realism offers the alternative of a material dependence on the sciences. Philosophy for it can have no other method but that of science, and no other object, except so far as the lack of restriction to any particular field constitutes a difference. Its task is to continue the work of science by probing in the scientific spirit questions which no single department can adequately handle.

(II) *Number.*—This means that realism will also tend towards empiricism, if empiricism is taken in a fairly generous sense. So much is assured by the acceptance of the space-time framework and by the general reliance on the work of the sciences. But the recognized importance of mathematics to science is a powerful influence against any tendency to sensationalism in a philosophy based upon science. The general empiricism of attitude finds its clearest expression in the controversy as to the nature of truth. Empirical truths are ascertained separately, and each stands, so to speak, on its own legs. I can assure myself that someone is in the room without knowing who he is, why he is there, where he came from or intends to go next. Doubt as to the answers to these questions does not infect with any uncertainty the observed fact that a man is in the room. Thus empirical knowledge can be built up piecemeal. The progress of science is organized on lines which presuppose a similar discreteness in the structure of truth. Discovery is added to discovery; workers far separated and largely ignorant of one another's work make their separate contributions; and so scientific truth is built up piecemeal. Consistency, of course, has to be secured and contradiction avoided. Occasionally the inconsistency of two apparently well attested observations will show that there is something wrong with one or other or both of them. But the primary and ruling test is that of the senses. Each such statement must show its own conformity with fact. Thus truth seems to consist in the accurate correspondence of ideas to facts.

Such a view of truth has found support at most times. But it has always been opposed to the metaphysical demand for a stricter unity in knowledge; and the internal test of coherence has been urged, as against the external test of correspondence, as the criterion of truth. This coherence theory is only the modern version of the demand for system which found expression earlier in Kant's saying that philosophy should think " nought done if aught remained to do," and Plato's assertion that nothing was known save in the light of the Form of Good.

(III) *Mind.*—It has already been explained that a main ground of the realist's opposition to idealism is resistance to the tendency to make mind the centre of philosophical discussion. One may regard the difference between the realist and the idealist on this side as the contrast between two opposed procedures, of which both may seem equally promising. The initial situation, from which both start, is a human mind perceiving, in samples or extracts, a world which includes itself. From this situation investigation may proceed along two lines. It may explore that which is perceived and reach out into all that is continuous with it, or it may explore the perceiving and its continuations and extensions in thought, imagination, and other mental activities. Each of these avenues seems promising, and along either, it seems, the whole story might ultimately be revealed. For the perceived world is regarded always—apart from some metaphysical paradox—as including minds: they have their place and function within it: and, therefore, by an analysis of the perceived, we may legitimately hope ultimately to make this place and function quite clear and precise. And, in a different sense, the perceivings and their continuations include whatever is not mind, since there can be no recognition of an existent which is not a perceiving or an act in continuation of perceiving. Of these two roads, the realist chooses the first, the idealist the second. To the realist, the philosophic judgment is a direct continuation of the judgment of perception or common sense, which is occupied in assessing the object presented to it. To the idealist, the philosophic judgment requires a reversal or reflection of mind upon itself, so that, instead of just seeing a tree and asking what a tree is, it sees itself seeing a tree and asks what that object is or signifies. On the one view philosophy is the same in kind as science; on the other view it is different. Philosophy to the idealist is based on reflection in the sense which Locke gave to that word; it belongs to mind's self-consciousness; and this the realist denies. For him the only legitimate development of such reflection would be into psychology: it would be introspection, supplementing the evidence as to the nature of mind which external observation provided.

(IV) *Society,* and (V) *Conduct.*—It will be evident from what has already been said that the realist will attach much less importance than the idealist to political and ethical questions. These have their obvious place in a philosophy of mind. But mind, when it is reduced to its true dimensions as one among other natural objects, becomes the object of a science or a group of sciences, with which philosophy is in principle in the same relation as with physics or any other natural science. To these scientific analyses of mind the realist will be ready to assign in his synthesis a prominence corresponding to their place in the field of the sciences. But what degree of prominence will that be? What is the criterion of importance? Here we reach another polar opposition between the two schools.

It was a commonplace of classical Greek philosophy that the world was everywhere (so to speak) stratified after a certain fashion. The lower stratum supplies always the condition for the existence of the higher, and the higher supplies in return the condition for the understanding of the lower. The superiority of the higher strata may be determined, independently of physic. He will suspect this whole tendency of anthropomorphism, of consolation and edification. The realist will, however, enter this field, partly for controversial purposes, partly as feeling an obligation to give an account of what he finds in art or literature or some other part of it. When he does, it may be presumed that he will attempt to carry through, so far as possible, his thesis that in every reliable mental act some real thing is apprehended, which really has, even when no mind is in touch with it, the characteristics which the mind finds in it. Truth and beauty and goodness, he will argue, are not creatures of thought, nor dependent on mind for their existence. Reality includes in some sense true propositions, good things and states, beautiful objects, which the mind by properly directed effort may find in their truth, goodness, and beauty. In our discussion of values we suggested that these were, perhaps, ultimately not only *for* mind, but also *of* mind. The *for* a realist might, perhaps, accept; the secondary qualities already create an obstacle to asserting the object's complete independence of mind; but the *of* he would certainly deny. The ground of all true assertion is to be found in the thing perceived; and the thing perceived exists independently of the mind which perceives it.

It would be a pity to end with the differences of philosophers among themselves. I should like to make, in conclusion, some remarks about the place of philosophy in the economy of human life—remarks which hold, as I believe, of all genuine philosophic thought, to whatever date or school it may belong. Man is a creature of habit. His life and thought are deeply, perhaps increasingly, departmentalized. The tradition of philosophy represents the one serious and systematic effort by the power of thought to overcome these divisions, and so to loosen the chains which habit forges. The philosopher is thus the general custodian of human freedom. His faith is the trustworthiness of thought, and his weapon is a pertinacity in questioning, of which the activities of Socrates in the market-place of Athens are the prototype. Every claim to truth and insight must be submitted to unsparing and unprejudiced examination. He must go to all and speak to all in language that they can understand. He will go to the experts and show them the nature and limits of their expertise. He will go to the statesmen and show them a wider horizon than the choice of expedients and the conciliation of interests in which they live. He will convict experience of lack of knowledge, and knowledge of lack of experience. Sometimes he will be the champion of tradition against innovation, of common sense against the specialist, of "faith" against "reason"; but he will be thought usually a dangerous ally, one who may at any moment go over to the other side. His influence will be felt to be unsettling, for he is always showing that supposed certainties are by no means the certainties they are taken for, and reviving alternatives that sensible people have long ago decided to reject. He will be accused of parading a certain superiority and detachment, shading off into the arrogant perversity which insists on trimming the ship by always joining the minority, and makes him the friend of "every century but this and every country but his own." But, popular or unpopular, he will be at work all the time, if he is true to his name, in keeping the spirit of critical reflection alive over the whole field of human life and thought, and so helping to give man his freedom.

The freedom which man needs, and which thought alone makes possible, is freedom from his foreground. The present moment and its pressing needs, the things that are most clearly and most often seen, the familiar routine and the established authorities, the intellectual catchword of the day, the fashion in dress, books, pictures, plays—all this and much else make a foreground by which man is apt to be unduly dominated. They have a certain friendliness, even when obviously open to criticism and improvement, and in general an air of rightness. It is only by a determined and persistent effort of thought that they can be seen in due proportion, with proper allowance for the effect of perspective; and the organization of this effort rests with the philosopher. But freedom from this and that is a negative which requires a positive ground. Hence all these ambitious attempts at systematic metaphysical construction. The philosopher will not merely free man from his foreground; he will also, if he can, make him free of the reality in which that foreground disappears or sinks into insignificance. A purely sceptical treatment, which merely shows the unsoundness of much that passes for true and certain, has never had much hold either on philosophers or on their public. Where the solvent of thought operates destructively, some compensating solid is rightly demanded and offered, even though it may fall far short of that rounded wholeness of which the more confident speculators dream. Even the most sceptical philosophy aims at making men more secure in the possession of their exiguous store of knowledge.

BIBLIOGRAPHICAL NOTE

THE reader is advised, if he wishes to continue the subject, to read and meditate the works of the great philosophers, which are readily accessible in the original and in translations. Especially, Plato, Aristotle, Descartes, Spinoza, Locke, Leibriz, Berkeley, Hume, Kant. To fill in the background and the gaps in this great historical development he must have recourse to histories of philosophy and other secondary sources. Contemporary tendencies can best be appreciated by concentration on representative thinkers—*e.g.*, on Bradley, Bosanquet, or Croce as representing idealism; and for realism S. Alexander's *Space, Time, and Deity* gives the broadest and best foundation.

GREAT PHILOSOPHIES OF THE WORLD

By C. E. M. JOAD

Author of "Essays in Common Sense Philosophy", "Common Sense Ethics"; "Common Sense Theology"; "Mind and Matter", "The Future of Life", "Introduction to Modern Philosophy"; "Introduction to Modern Political Theory"; "The Mind and its Workings"; etc.

LONDON: ERNEST BENN, LIMITED
BOUVERIE HOUSE, FLEET ST. E.C.

CONTENTS

PAGE
INTRODUCTION . . . 3
CHAPTER
I. PLATO 6
II. PLATO'S THEORY OF IDEAS: ST. THOMAS AQUINAS 16
III. RATIONALISM: DESCARTES AND LEIBNIZ . 25
IV. IDEALISM—I. BERKELEY . . . 36
V. IDEALISM—II. KANT AND HEGEL . . 45
VI. THE PHILOSOPHY OF CHANGE . . 59
VII. MODERN REALISM 64
VIII. ETHICAL PHILOSOPHIES . . . 70
BIBLIOGRAPHY 80

First published 1928
Second impression October, 1929
Third impression August, 1932
Fourth impression October, 1936

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS LTD., GUILDFORD AND ESHER

GREAT PHILOSOPHIES OF THE WORLD

INTRODUCTION

In the following pages I have endeavoured to give a brief outline of some famous systems of philosophy. As it is clearly impossible within the limits of a book of this size even to indicate all the views which philosophers have entertained, I have selected those which, besides possessing a title to inclusion on their own account, lend themselves more or less readily to the purposes of popular exposition.

Philosophy is a difficult subject, and, to those who are not familiar with the twists and turns of the speculative reason, somewhat bewildering. It rejoices, moreover, in technical terms. These latter I have endeavoured scrupulously to avoid, and, for the rest, I hope that there is nothing in these pages which will prove unintelligible to those who are tackling the subject for the first time.

A word may be added with regard to the general character of the philosophies outlined. As the reader proceeds, it will be borne in upon him not only that the conclusions reached by different philosophies are hopelessly at variance, but that there seems to be no sort of agreement even as to the subjects which should be discussed. If philosophers do not know what they are looking for, how, he may be tempted to ask, are they to be expected to find it, at which point he will call to mind some time-honoured gibe about a philosopher being like a blind man in a dark room looking for a black cat that isn't there.

For all this, let him not be tempted lightly to dismiss philosophy. The philosopher seeks to comprehend the universe as a whole; not, like physics or biology, a special department of it, but the whole mass of data to which the moral intuitions of the ordinary man, the religious consciousness of the saint, the æsthetic enjoyment of the artist, and the history of the human race, no less than the discoveries of the physicist and the biologist, contribute. To look for certain fixed and definite knowledge in regard to a subject-matter of so all-embracing a character is unreasonable.

In the first place, the subject-matter is itself in a state of continual flux. It is not philosophy alone that is changing and self-contradictory; the record of science is strewn with the débris of discarded theories, and the scientific laws and formulæ of one age are superseded in the next. At the moment the physicists are presenting us with new theories about the constitution of the material universe at about the rate of one every ten years, while biology is in a state of perpetual controversy about the cause and character of the evolution of life. But more important than differences in the data about which the philosopher speculates are the differences in the minds of philosophers. Philosophy is not content to catalogue the facts; it inquires into their meaning. Pooling the experiences of the scientist, the saint, the artist, and the common man it asks what must be the nature of the universe in which such experiences are possible. It is interested, in other words, not so much in the facts as in their significance. Thus it establishes principles of selection and rejection whereby some of the facts are shown to be important, while others are rejected as trivial or condemned as illusory; it assigns values, too, and assesses the universe in respect of its beauty or its goodness.

Now, this search for meaning and significance, this task of assessment and valuation, involves considerations of a highly personal character. We shall select according to what we think important; we shall group and arrange according to likenesses which we think significant; we shall assign values to what we recognise as beautiful or good. What we think important or significant or beautiful will depend very largely upon the sort of minds we possess, and not only upon our minds, but also upon our characters and temperaments. One man will detect common elements where another observes only a chaos of differences; some will recognise the hand of God in what others insist to be a haphazard collection of fortuitous events. Thus, while the facts are the same for all, the conclusions which we base upon them will be different. Nor need this difference be deplored: just as it takes all sorts of men to make a world, so does it take all sorts of minds to make the truth about the world, and philosophy is no more to be dismissed because each philosopher has a different system, than morality is to be invalidated by the fact of differing moral judgments, or religion proclaimed to be nonsense because there are innumerable variations of religious belief.

But for all that, philosophy, which is not to be lightly attempted by any, should be eschewed altogether by some. There are those who feel an imperative need to believe, for whom the value of a belief is proportionate not to its truth, but to its definiteness. Incapable either of admitting the existence of contrary judgments or of suspending their own, they supply the place of knowledge by turning other men's conjectures into dogmas. To such the uncertainties of philosophy will bring nothing but irritation and contempt, and they should not, therefore, read this book.

There are, however, others, and, if it should prove to be the means of introducing these to the original works of the great philosophers, it will not have been written in vain.

CHAPTER I

PLATO

MANY people consider Plato (427-347 B.C.) to have been the greatest of the philosophers. He lived in Athens in the fourth century B.C., and began to teach and write some fifteen years after the defeat of Athens by Sparta in the Peloponnesian War. This defeat, which terminated the military greatness of Athens, has been ascribed by some to the extreme form of democracy which constituted the city's Government, a form of democracy under which every citizen was a member of the governing assembly, wherein he exercised a direct influence on the policy of the city. Plato himself was inclined to take this view, and his writings are characterised throughout by a hostility to democracy. This hostility was intensified by the treatment which the Athenian populace had accorded to the philosopher Socrates (470-399 B.C.). The philosophy of Socrates consisted less in the profession of his own wisdom than in the demonstration of others' ignorance. It was his habit to ask the Athenians questions with a view to ascertaining the grounds upon which they based their beliefs. What, he wanted to know, did they consider to be goodness, and why? What was courage? If, as is clearly the case, the brave man is afraid of certain things, as, for example, of doing what is shameful, of running away or of betraying his friends, how is his fear to be distinguished from the fear of the coward?

Anyone who is compelled to consider why it is that he believes what he does believe will usually find, either that he can give no reasons at all for his beliefs, or that they are not presentable in public. Socrates was continually forcing this discovery upon the Athenians, who, being naturally irritated by the man's incessant curiosity as to their beliefs and motives, accused him of corrupting the youth and discrediting the gods, and had him poisoned. Plato was one of Socrates' disciples; the precise nature of the relationship between the two men is a matter of controversy, but there is no doubt that some part at least of Plato's philosophy is derived from Socrates, who is the chief figure in Plato's *Dialogues.* Plato's view seems to have been that a people who were capable of putting their wisest man to death simply because he was the wisest, were not, and never would be, fit to govern themselves; hence his antagonism to democracy.

Plato's philosophy is contained in a number of *Dialogues* (twenty-seven are extant, although it is not certain that all of them were, in fact, written by Plato). The *Dialogues* are conversations between a group of people, and usually centre round a particular topic. The "Republic," for example, is concerned to discover the nature of justice; the "Symposium" is a series of dissertations on the character of Love; in another dialogue courage is discusused, in another temperance or self-control. The *Dialogues* vary enormously in point of dramatic interest and philosophic profundity. Some are little more than dialectical skirmishes, in which Socrates discomfits his opponents as much by good-humoured pleasantry, as by philosophic argument; people make jokes; there are personal allusions and nobody goes very deep. Others are disquisitions upon metaphysics or logic, in which the atmosphere of the dinner-table is replaced by that of the lecture-room; the element of dramatic interest is reduced to a minimum, and the characters are little more than mouthpieces for the expression of various points of view.

In general, however, the *Dialogues* proceed somewhat as follows: Somebody, generally a typical representative of the man-in-the-street, gives utterance to a platitudinous reflection about politics or religion, in which some word like "just" or "true" or "beautiful" appears. Socrates asks him what he means by the word; he endeavours to explain, and involves himself in difficulties. Other speakers come to the rescue with different suggestions as to what he may have meant; Socrates disposes of them one by one, and is then challenged to give his own meaning of the term in dispute. This he presently undertakes to do, and the rest of the dialogue is in effect a long disquisition by Socrates interspersed by objections or requests for restatement in the interests of clarity by the other speakers.

The "Republic," the most famous of the *Dialogues,* follows this course. A discussion arises as to the nature of justice. Various definitions of justice are suggested, which Socrates has little difficulty in showing to be inadequate. Two of Socrates' own followers, Glaucon and Adeimantus, then proceed to elaborate a carefully thought-out and well-substantiated line of argument with regard to the nature of justice, which they challenge Socrates to refute. What they set out to maintain is that men have no natural or innate preference for justice as compared with injustice, but they extend the scope of the argument in such a way that what they are presently found to be denying is that there is any essential or intrinsic difference between morality and immorality. Their case falls into two parts : First, men are by nature lawless and non-moral, bundles of imperious desires, whose activity is prompted by no other motive than the gratification of their desires; this, at least, is true of man in the state of nature. In course of time, however, it was borne in upon him that the measures necessary for the gratification of his desires were impeded by similar measures on the part of others. The acquisition of the necessities of life—food, for example, or shelter, or a wife—was attended with serious disabilities in the face of the greater physical strength of neighbours who coveted the same desirable objects, and the consequent insecurity of life became intolerable. Accordingly, man decided to forego his right to gratify his desires as and when he pleased, provided that his neighbours made a similar concession, and to indulge only those of his desires which were not incompatible with the indulgence of the desires of others, which were not, that is to say, socially injurious; he decided, in other words, to live in society.

Man in society proceeds to make laws the object of which is to restrain the citizens from purely self-regarding conduct designed to satisfy the self irrespective of the wishes of others. As a member of society the citizen behaves respectably and obeys the laws; but he does this not from choice, but from fear; not, that is to say, because he naturally prefers to do what is right, but, lest a worse thing befall him, if he transgress the ordinances of society. Morality, then, which we may identify with law-abiding conduct, is not natural to human nature, but is conventional. It is the product, not of a natural preference for doing right as compared with doing wrong, but of the consequences which society has taken care to impose upon socially injurious conduct. Remove the fear of these consequences, as, for example, by endowing a man with the power to become invisible at will, and he would at once lapse into the natural, lawless state of his pre-society days, satisfying his desires as and when he pleased without let or hindrance from moral considerations. Man, then, is by nature not just, but unjust; not moral, but non-moral.

The second part of the case is devoted to showing that man's apparent regard for justice is not really disinterested, is not, that is to say, a regard for justice in itself, but is generated by and proceeds from a consideration of the respective consequences of so-called just and unjust actions.

Human society, to commit an anachronism and quote Schopenhauer, is like a collection of hedgehogs driven together for the sake of warmth. Spikes in close proximity would prick unless they were well felted. Hence those kinds of behaviour are encouraged by society which felt the spikes and so render social intercourse possible. Society's encouragement takes, in the first place, the form of moral approval; it defines as virtuous those actions which benefit it. Courage, for example, is regarded as morally good because the habit of facing the enemy is more advantageous to an army than the contrary habit of giving way to one's natural reaction to belching cannon and running away; temperance, because the excessive indulgence of unbridled desire is apt to be a nuisance to others; truth-telling, because if we all told lies, nobody would believe anybody else, and there would be no point in telling lies. The advantage to others of the virtue of unselfishness is obvious, and selfishness is therefore reprobated because society loses by it. Thus, virtuous conduct is simply the habit of acting in ways of which society approves, and society takes care to secure its performance by punishing, either by the ostracism of public opinion or by the penalties of the law, those who have the temerity to outrage its moral code. Men act morally, therefore, not because they are by nature virtuous, but to avoid the censure of society.

But the rewards which society offers to the good—that is, to those who do what benefits it—are not confined to the intangible benefits of moral approval. By a hundred maxims of the "Honesty is the best policy" type, we strive to convince a man that to act "rightly" is the way to prosperity and happiness. Nor are the results of "right conduct" confined to this world. Most social systems have emphasised the pleasure which the gods take in an honest man, being careful at the same time to paint the results of displeasing the gods in the liveliest colours. Thus, every man is bidden to choose between two different types of life; the first involves taking out a short term insurance policy, the benefits of which are drawn in terms of earthly pleasures to be enjoyed here and now, pleasures both dubious—or so say the moralists—and short lived; the second is a long term policy involving the payment of premiums in the form of self-restraint and law-abiding conduct in the present, for which the holder is compensated with the prospect of an eternity of divine bliss in the hereafter. It is not surprising that most men choose the second, and, suppressing their natural, primitive desires, conform to the requirements of society by maintaining a decent level of moral behaviour. This does not mean that they reverence morality and hate immorality, but simply that they prefer the consequences which attend the former to those with which society has taken care to discourage the latter. Thus, *morality is honoured not for itself, but for its rewards.*

Compare justice and injustice as they are in themselves, stripped, that is to say, of their consequences; nay, more, visit the just man with the consequences which usually attend upon injustice, and give him the reputation of being unjust into the bargain, and who would wish to be just?

Is it, in the face of these arguments, possible to prove that justice is intrinsically superior to injustice, that morality, in other words, is *in itself* better than immorality? "If it is possible," say Glaucon and Adeimantus, "will you please, Socrates, to prove it?"

The remainder of the "Republic" is Socrates' answer to the challenge. Faced with the necessity of defining justice and proving its intrinsic superiority, he points out that the best way of discovering its nature is to look for it where it is writ large—that is to say, in the principles regulating the intercourse of men in society; in other words, in the State. It will be manifested, moreover, most clearly in the best of all possible States. What is the best of all possible States? Socrates' answer to this question is to construct an ideal State, the arrangements of which are regulated exclusively by a rational consideration of what is good.

The ideal State is an aristocracy, ruled by a guardian class who receive an intensive education, and are chosen in virtue of their ability to comprehend and fitness to maintain the principles on the basis of which the city is founded. The guardians live communally, owning no private property in order that they may not be tempted by considerations of self-interest to admit any incentive to conduct other than the welfare of the State. The remainder of the population is divided into two classes, the soldiers and the workers, the former being entrusted with the duty of protecting and the latter of producing for the State. Justice is found in the contented performance by each class of citizens of the functions and duties appertaining to that class, and the resolute refusal of the members of one class to interfere in the business of the other two. Hence Plato's State is founded on a specialisation of function, which springs from the principle that every man should do that only for which he is best fitted. This is the negation of democracy, in which everybody is considered to be an expert at everything, and the man-in-the-street presumes to understand the conduct of affairs.

The division of the State into three different classes corresponds to and is based upon a threefold division of the human soul. The soul for Plato has three parts (as we should put it to-day, a man's psychology exhibits three main aspects or trends), the rational part, the emotional or spirited part, and the desiring part. Wisdom is the virtue of the first, courage of the second, and temperance of the third. (Temperance consists more strictly in a relationship of harmony between the third part and the other two, in virtue of which desire is subjected to reason and schooled by the more generous emotions.) To each part of the soul there corresponds a particular type of man. The guardian of the State, who is also a philosopher, exemplifies the reasoning man, since in him the reasoning part of the soul is most strongly developed; the soldier is the emotional or spirited type of man; the ordinary worker, who is represented as more or less subject to the sway of a variety of different desires, corresponds to the desiring man. Now, just as justice in the State was found to consist in the proper performance by the members of the different classes of the duties and functions appropriate to the class, the guardian governing, the soldier protecting, and the workers producing, so does justice in the soul consist in a right performance of their appropriate functions by the different parts of the soul. Each part of the soul must, that is to say, perform the function proper to itself; the reason must rule the passions, deciding, in the interest of the good of the whole, exactly how much rope each individual passion is to be allowed, and the spirited part must assist reason in her task by enlisting the nobler emotions, such as indignation at what is base and the sense of shame, in her support. Social justice is simply the external expression of this just condition of the soul.

The notion that justice in particular and morality in general involve the subjection of the passions to the reason has a somewhat unexpected consequence in the denial of what we are accustomed to regard as moral consciousness to the third class, that is to say, to the mass of ordinary citizens. As we shall see when we come to discuss Plato's theory of Forms, what we may call self-conscious morality, which is usually taken to include the knowledge of what is good, the perception of the nature of the difference between right and wrong and the recognition of the obligation to do what is right, is ascribed only to those who have known reality—that is to say, to philosophers.

When he is asked how his State may be realised in practice, Socrates says that this is impossible unless philosophers become kings. Now, this somewhat surprising statement follows directly from Socrates' definition of a philosopher as a person who knows reality. The question of what is meant by reality can only be answered by an account of Plato's metaphysics, which cannot be undertaken in this chapter. I shall return to the subject in the next chapter, when I shall briefly describe Plato's theory of reality and trace its line of descent through medieval to modern philosophy. For the present it will be sufficient to say that reality includes a conception known as the Form of the Good, from which all good things derive their goodness.

Accepting Plato's definition of a philosopher as a person who knows reality, and knows, therefore, among other things, what good is in itself, assuming also that philosophers are kings, that they compose, in other words, the guardian class in Plato's State, it will follow that the laws which they prescribe for its governance will embody their knowledge of what is good. These laws, that is to say, will be drawn up upon the model of the ideal laws which the philosophers have discerned in the world of reality, and they will be, therefore, the best possible laws. These laws will constitute a framework such that, by ordering their lives in accordance with it, the citizens will be automatically constrained to do what is good. Not being philosophers, they will be ignorant of what virtue is and of why they should pursue it; they will lack, that is to say, a spontaneous and self-conscious morality, but by the mere process of living in accordance with the laws they will attain to such virtue as lies within their capacity. Thus, in Plato's State the morality of the ordinary citizen will spring, not from an insight into what is good, nor from a conviction that good ought to be pursued and evil eschewed, but simply from his obedience to public opinion and the laws, an obedience which, as a result of his social training and education, has become second nature.

This is, in effect, to concede to Glaucon and Adeimantus a large part of their case. It is a way of saying that the morality of the ordinary man is and must always be conventional, and it constitutes Plato's fundamental argument against democracy. The ordinary man is too busy or too stupid to discover his duty or solve his moral problems for himself; yet it is essential for him to believe something, and he is constrained, therefore, to buy his morals at the social shop. His sense of right and wrong is formed for him, that is to say, by his social environment as it expresses itself in law and public opinion. At Plato's social shop he will obtain the best suit of morals which he is capable of wearing, by living in obedience to laws which, being framed on the model of those that exist in the real world, enjoin upon him as his duty the best conduct of which he is capable.

Hence, in morality, as in politics, Plato's social system involves a denial of the fundamental tenet of democracy. The democrat is inclined to say that the man who makes laws should be the man who has to obey them, on the ground that it is only the wearer who knows where the shoe pinches; if the laws are imperfect—as is to be expected, since they are made by the imperfect—it is, after all, the imperfect who will have to fit into them. It is better to have imperfect laws that prescribe the conduct that suits you and express your sense of social morality, short-sighted as it may be, than the best possible laws which only perfect beings could be expected to understand. Plato's answer is simply to deny that the ordinary individual can be trusted to decide what is best for him as an individual, or to prescribe what is good for the society to which he belongs. This is the task of the expert—in other words, of the philosopher—and the only chance for the State is to entrust such men with its legislature. This done, the duty of the ordinary man, the only good of which, as Plato would say, he is capable, will be found in living according to the way of life which the philosopher prescribes.

This Plato contrives that he shall do by living in obedience to the city's laws and carrying into effect the principles with which the city has imbued him in childhood. Thus, that the best should rule and that the rest should be educated in the primary duty of obeying the best, are the two main features of Plato's political philosophy.

CHAPTER II

PLATO'S THEORY OF IDEAS: ST. THOMAS AQUINAS

Plato's celebrated theory of ideas may be regarded as an attempt to mediate between two contradictory metaphysical systems, which he had inherited from his predecessors, the philosophers Heracleitus (540-475 B.C.) and Parmenides (about 500 B.C.).

Heracleitus held that everything is in a state of change or flux and that nothing is stable; Parmenides maintained, on the contrary, that change is an illusion, and that reality is changeless. Into the reasons for Heracleitus' view I cannot here enter; I hope to consider them in some little detail when we come to the philosophy of Bergson.* The notion that everything is continually changing is, moreover, one which, so far as the material world is concerned, science has made sufficiently familiar to-day, and it need not be elaborated here.

Parmenides' arguments were chiefly directed to proving that reality as a whole cannot change. If we consider everything that is, it is clear that it cannot become more than it is, except by the addition of something else; but, if we start with literally everything, there is nothing left that can be added to it. Similarly, everything that is can only become less than itself by reason of some part of it becoming separated and departing somewhere else; but once again, if you start with everything that is, there is no place whither the separated part can proceed that has not already been comprehended in the whole reality with which you started. Similar arguments can be applied to demonstrate the impossibility of the growth or diminution of any particular element in the universe

---

* See Chapter VI.

—that is to say, of apparent changes in the quality as opposed to the quantity of everything that is. It follows that the whole cannot change, and that any apparent change in the parts is, therefore, an illusion.

Greek philosophers were particularly fond of maintaining this position, and invented a number of paradoxes to prove the unreality of change. Of these the most famous is that of Zeno of Elea (early fifth century B.C.), the founder of Stoicism. Consider, he said, any apparent example of change or motion, an arrow, let us say, in its flight. At any given moment of its flight it either is where it is or it is where it isn't; if it is where it is, it cannot be moving, since, if it were, it would not be there; and it cannot be where it isn't. Therefore, at that particular moment it is not moving. Similar arguments apply to any other point or moment in the flight of the arrow; therefore at no point or moment does it move; therefore its movement is an illusion.

Faced by these two opposing positions in philosophy Plato found himself unable entirely to reject either. What he did was to limit their application: each, he held, applied to a certain section or aspect of the universe, but neither to the whole of it. Let us consider first our knowledge of sensible things—that is to say, of the objects of which we are made aware by means of the senses. Plato is continually pointing out how fallible and relative this knowledge is. If I put my hand, which has been half frozen in a blizzard, into lukewarm water, I shall pronounce the water hot; but a man coming out of a hot bath will find it cold. In other words, so far as our knowledge of it goes, it is both hot and cold at the same time. An elephant will regard a rabbit as a small animal, but to a cheesemite the rabbit will appear gigantic; hence the rabbit seems to be both small and large at the same time according to the nature of the creature viewing it. Similarly, with regard to æsthetic and moral qualities, one man will find a picture beautiful which another considers ugly, and an action which seems admirable to one will seem base to another. It is clear, then, that, as Plato put it, objects of sense have no more right to be credited with certain qualities than they have to be credited with the contrary qualities. Whatever grounds there may be for saying that X has the quality A apply equally well to the statement that X has the quality B, B being the opposite of A; in other words, X has both the qualities of A and B at the same time, or, rather, it has neither of them, but fluctuates about, as Plato says, between both. X, therefore, is of such a character that no quality can be truly ascribed to it; hence, X is not quite real. Since X is not a fixed and definite thing with unalterable characteristics, we cannot have definite knowledge of it, but only what Plato calls opinion. It is for this reason that we are enabled to pass contradictory judgments about the same thing, asserting, for example, in the case of the picture, that it is both beautiful and ugly. Opinions, that is to say, may contradict each other, since none are true, but knowledge cannot be self-contradictory. A thing which is real either has or has not certain definite characteristics, and the only relation which knowledge can have to these characteristics is to be aware of or to recognise them. We cannot, then, have knowledge of the sensible world; yet, as science and mathematics show, we do most certainly have knowledge. Of what, then, is this knowledge? Plato's answer is, of the world of Forms or ideas.

In order to understand what is meant by a Form, let us consider a conception such as whiteness. Whiteness is obviously not the same thing as a white object, such as cream or snow, nor is it the sum total of such objects, since, if all the objects which are called white were collected together, their sum total would not be whiteness. What then is whiteness? To this question some might reply that what we mean by whiteness is an idea or concept in our minds, but this reply is not

Plato's. If we were to take this view, it is clear that things would cease to be white when we ceased to regard them; that, in short, if all minds were abolished, no such thing as whiteness would remain. Yet in ceasing to contemplate a white object, you do not effect any alteration in the qualities of that object. Whiteness, therefore, is not something which is mental, nor, though it attaches to objects, is it itself an object, nor is it any number of objects. What, then, is it? Plato's answer is that it is a Form or idea, neither mental nor material, changeless, perfect, and eternal, an inhabitant of the real world.

To the real world belong all the Forms whose manifestations we discover and imperfectly apprehend in sensible objects. It is the Forms which bestow upon sensible objects whatever qualities they are found to exhibit, and so endow them with such semi-reality as they possess. It is of the Forms that we have knowledge as opposed to mere opinion, and the object of philosophy is to elevate the soul from the realm of opinion in which her objects are the fleeting, changing things of sense, into the realm of knowledge, where she may come face to face with the Forms to which the things of sense owe their being.

It is on these lines that Plato effects a reconciliation between Heracleitus and Parmenides; Heracleitus is right to affirm that everything changes, so far as the world of sense is concerned; Parmenides' view is correct in so far as it relates to a world which, being wholly real, is also changeless. Thus, when Plato says that his ideal State can only be realised when philosophers become kings, he means by a philosopher one who has apprehended the Form of the State as opposed to the imperfect representations of it in the sensible world; one, that is to say, who has *knowledge* of what the State is in reality, as opposed to mere opinion.

Plato's distinction between the world of thought and the world of sense, between universal concepts such as whiteness, and particular instances of them such as one white object, runs through the whole of philosophy. In the Middle Ages it appears in the form of a controversy between two schools named respectively the Realists and the Nominalists. In order that the issues in this controversy may be understood, it is necessary that I should say something of Aristotle's criticism of Plato's theory of Forms.

Aristotle (384-323 B.C.) is the most important of the Greek philosophers after Plato. Although strongly influenced by Plato, he was, nevertheless, a severe critic of the theory of Forms. Plato, as we have seen, regarded the Forms as principles of substance, which existed apart from the physical objects upon which they conferred qualities, and apart also from the mind which apprehended them. Thus, in addition to all the individual horses that there are in the physical universe, there is a Form or idea of a horse, in virtue of which the individual horses possess the common characteristic of "horsiness," which causes us to recognise them as horses, but which is, nevertheless, independent of and other than any of the individual horses which belong to the sensible world.

There are two main criticisms of this doctrine, both of which are found in Aristotle. First, what is the relation between the individual horses and the Form of the horse? Plato uses two rather different words to describe this relation. He says that the physical horses "imitate" or are "modelled on" the Form, and also that they "participate" in it. If they participate in it and owe their qualities to this participation, we are committed to the difficult view that the real and changeless—namely, the Form—is the immanent cause or essence of the being of the half real and changing—that is, the physical horses. If the relation is one of imitation only, it seems impossible to maintain, as Plato does, that the real world is the cause of the being of and the characteristics exhibited by the sensible world; it will be merely an accident that the qualities of physical objects mirror or reflect the

Forms, and there is, therefore, no reason to postulate the manifestation of the Forms at all, in order to explain the qualities of the sensible world.

Thus Aristotle's second criticism consists of charging Plato with the simple mistake of attributing independent, substantive existence to our general notions and ideas. Aristotle does not wish to deny that we have such general ideas, but the fact that we have them is, he says, no reason for projecting them, as it were, outside our minds, and asserting that they are independent factors of the external universe, or even that there are such independent factors to correspond with our general ideas. Thus Aristotle denied the independent existence of Forms, affirming that Plato had been misled into attributing independent, substantive existence to the common qualities we discerned in individual things and to our general ideas of those qualities.

The philosophy of the Middle Ages, known as Scholasticism, is a blend of the philosophies of Plato and Aristotle, a blend which, in the three centuries during which it flourished (from the eleventh to the fourteenth centuries, A.D.) exhibits progressively more of the influence of Aristotle and progressively less of that of Plato. Although, however, the doctrines of Plato steadily declined in importance through the Middle Ages the influence of the Forms remains apparent throughout the whole history of Scholasticism. Scholastic philosophy abounds in entities conceived more or less after the likeness of the Forms such as essences, potentialities, principles, causes, which are conceived not as ways of representing facts or as the properties of things, but as independent agencies, which are responsible for the occurrence of the phenomena they were invoked to explain. Because a stone fell to the earth when dropped, medieval philosophers were inclined to say that it possessed a "principle of gravity" which caused it to seek the earth's centre; the fact that quinine prevents a cold would be explained as due to its possession of a "cold-forbidding essence," which would be thought of as a Form with which the material of quinine had combined. In this way the influence of the Platonic Forms still made itself felt.

One school of medieval philosophers, the Realists, continued to maintain the Platonic doctrine in all its completeness, affirming that the Forms were principles of substance existing apart from objects and minds. In addition to the Forms, there were also, they held, the general ideas we have of them; there is, for example, a Form of whiteness, and there is also our general idea of whiteness, and, since it is not necessary, on the Realist view, for a Form to manifest itself in or to combine with matter in order that it may exist, there are Forms which have no material manifestation. Thus, for the Realist, chimerical entities, like unicorns, existed in the world of Forms.

The Nominalists, the opponents of the Realists, did not deny that we can form general notions of things, nor that there are factors in the external world from which these notions are derived. But they refused to assign to these factors independent existence, asserting that they are merely the common qualities observed in groups of physical objects, whiteness being the common quality possessed by both snow and cream, but not being something over and above the snow and the cream which are white. Hence our general notions are derived from an inspection of physical objects and do not precede such inspection.

William of Champeaux (1070-1121) was one of the leading Realists, Roscellinus (1050-1122), the teacher of Abelard, the protagonist of the Nominalists. Abelard (1079-1142) attacked both Realists and Nominalists; but his own views, which are inclined more to Nominalism than to Realism, are not as clear as could be wished, and are chiefly concerned with theological problems.

Both Realism and Nominalism were ultimately superseded by the philosophy of St. Thomas Aquinas

(1227-1274), which may be regarded as the most mature expression of the thought of the Middle Ages. St. Thomas Aquinas' account of substance and of the relation of substance to the qualities which substance exhibits, is a typical scholastic doctrine, and I propose, therefore, to describe it in some little detail. St. Thomas Aquinas is more or less directly under the influence of Aristotle, with the result that in his philosophy the Forms, though still retained in name, are mere semblances of their Platonic originals, a Form being regarded not as an entity distinct from the material world, but as that which subsists in, and only in, the matter to which it gives its shape and qualities. For St. Thomas Aquinas the universe is composed of a union between matter and forms.* The matter (*materia prima*) is in itself without form, but it is united with forms of various kinds which have been fixed by the Creator. The result of the combination is a particular kind of substance endowed with qualities, and it is this particular kind of substance which we call a material object. Matter may combine with a number of forms either successively or together, but the forms cannot themselves be transmuted one into another, except by divine agency. Thus, change in a piece of matter is due to the withdrawal of one form which previously combined with it, and its being replaced by another; the green leaf in spring is the same as the yellow leaf in autumn so far as its matter is concerned, but the form of greenness with which it was combined has given way to the form of yellowness.

Among the forms which a material object may exhibit, there is one that St. Thomas Aquinas called "the substantial form." The substantial form is that which makes the object what it is; in the case of a leaf it would be "leafiness," in the case of a jug, "jugginess," and so forth. A thing's substance is the union of its *materia prima* with its substantial form. Any other qualities which it may possess, those, for example, in virtue of which we call the jug white or black, tall or squat, are termed accidents, since they are not essential to the jug's being a jug, and are due to the accidental union of the jug with the forms of whiteness or blackness, or tallness or squatness.

---

* I shall henceforward drop the capital F, the smaller letter being more appropriate to the diminished dignity of the forms in St. Thomas's philosophy.

The ability of matter to change—that is, to take on a new form—arises from what is called its potentiality. This potentiality is latent until it is brought into play by an external act. Thus St. Thomas' account of what happens when water is boiled and turns into steam would be that the potentiality of the matter of which the water is composed to take on the substantial form of "steaminess," is transformed into actuality, or, as we should say, brought into play by the action of subjecting the water to the heat of the fire.

It is interesting to notice in connection with this doctrine how the full-blooded Forms of Plato, the inhabitants of a perfect and changeless world, which alone possess the full title to be called real, have been watered down until they become nothing more than the shaping agencies of the *materia prima.* That they cannot exist without the matter to which they give shape is clear from St. Thomas' doctrine of the soul. Man is a combination of soul and body, the body being the substance, which owes its qualities to the imposition of various forms upon the *materia prima,* and the soul the form, and St. Thomas goes out of his way to insist upon the necessity of the body to the soul, in order that there may be a soul at all. Hence, the soul could not survive the death of the mortal body unless it were provided with a new and glorified body, which is, in fact, what happens at death.

The questions discussed in this chapter have never been satisfactorily settled. They persist to-day in the form of a controversy as to the precise relationship between universals and particulars. "Are universals* like whiteness," we ask, "something over and above the sum total of their particular instances, or are they merely the common qualities of different things?" The problems here involved, if treated in isolation, are incapable of solution, for the reason that they raise far-reaching issues which affect our general attitude to the universe as a whole and to the position and status of mind within the universe. Since, therefore, our views with regard to the existence and nature of universals will be determined by our philosophy as a whole, it is not desirable to discuss further as a separate question the issues raised in this chapter.

CHAPTER III

RATIONALISM—DESCARTES AND LEIBNIZ

THE word Rationalism has in philosophy a different significance from that which it possesses in ordinary life. A rationalist according to common usage is a person who insists on applying his reason to theological questions and ethical problems, instead of trusting to faith or insight or allowing himself to be guided by tradition. As the application of reason to theological and ethical questions has usually had a disastrous effect upon orthodox beliefs, a rationalist is generally found to be an agnostic, if not a sceptic.

In philosophy the significance of the word Rationalism is almost precisely the reverse. One of the great questions with which philosophy has been historically concerned is: How do we obtain our knowledge, and what is its validity? There are, broadly speaking, two answers to this question in the history of philosophy, the first of which is the rationalist answer. It is roughly to the effect that the mind is provided with a number of ready-made principles or faculties, and that it only needs to reason in accordance with these principles and to use these faculties to discover the whole truth about everything. Just as a mathematician in his study could, provided he reasoned well enough, deduce by sheer process of reasoning the whole of mathematics from one or two fundamental axioms, so, it was thought, the philosopher, provided he was a good enough philosopher, could discover the truth about the universe by the same methods. Hence a rationalist philosopher was one who took the view that reason itself, unaided by observation, can provide us with philosophical knowledge, which is also true knowledge. Now, if the universe were like a mathematical problem, the claim put forward by the philosophical rationalist on behalf of reason could be sustained. But unfortunately the universe is not like mathematics; it exhibits necessity, and, in so far as it does so, may legitimately be tackled by reason; but it exhibits contingency as well. An example of a necessary fact is that the three interior angles of a triangle are equal to two right angles. This fact is necessary because it follows necessarily from the definition of a Euclidean triangle; because a triangle is what it is, this is necessarily a fact about it. Facts of this kind can be discovered by process of reasoning. Contingent facts do not follow from anything; they just are, whether we like it or not, and there is no sort of necessity about them. For example, the fact that a substance with the specific gravity of gold should be yellow is a fact which no amount of reasoning will enable us to discover, because there is nothing reasonable about it; hence, in opposition to the rationalist philosophers there grew up a school of thought which insisted that, if you wanted to know what the universe was like, the only way was to go and look, which is, broadly speaking, the method of science. To put the point in another way, we may say that although reasoning will tell you what will follow from the fact that *x* exists, reasoning cannot tell you whether *x* does exist. Observation alone can inform us of the nature of what exists. Those who have insisted that observation or experience of fact is the basis of knowledge are known as Empirical philosophers, from the Greek word ἐμπειρια, which means experience. Empiricists who have emphasised the actual brute facts of the world have tended to arrive at sceptical conclusions with regard to such questions as the existence of design or purpose in the universe, or the ability of mind to act freely. That the universe is ultimately spiritual in character, or that God exists, are facts, if facts they are, which are certainly not given in sensation, and, in denying that anything could be known except through the medium of sense experience, empiricists have usually found themselves unable to admit the existence and efficacy of spiritual agencies. Thus their philosophies have been practical rather than idealistic in tendency, and their effect has been to confirm the outlook of the scientist and the man of hard common sense. There are exceptions to this generalisation, but it is true in the main. Rationalist philosophers who have relied upon the operations of the reasoning faculty for knowledge about the universe have tended to arrive at conclusions which are more conformable with our aspirations, affirming that the universe is fundamentally spiritual and is, therefore, such as we should wish to inhabit. The existence of God, for example, can be proved in a number of different ways by reasoning. Hence, when the brute facts of experience have seemed to contradict the spiritual character of the reality which reason has affirmed, it has been easy to show that the world revealed to us by our sense experience is in some sense illusory, presenting an appearance which belies the reality to which philosophical reasoning points. Thus Rationalism in philosophy has issued in beliefs which are directly opposed to those of the rationalists of ordinary terminology.

---

* The modern term for forms.

Descartes (1596-1650), Leibniz (1646-1716), and Spinoza (1632-1677) are rationalists in the philosophical sense just indicated; the English philosophers, Locke (1632-1704), Berkeley (1685-1753), and Hume (1711-1776) are the founders of the empirical school. With the views of Berkeley we shall deal in the next chapter; in this one we shall be concerned with the philosophies of Descartes and Leibniz.

We pointed out above that, if the universe were fundamentally of the same nature as a problem in mathematics, then it would be possible to discover the truth about it by the process of reasoning from self-evident premises. Descartes and Leibniz were both eminent mathematicians, and their philosophies are accordingly markedly mathematical in character. Affirming, that is to say, that we possess certain knowledge independently of experience, they proceeded to use their reason to deduce what the universe must be like in order to account for our having such knowledge. The question whether we do in fact have knowledge independently of experience (such knowledge is known as *a priori* knowledge) is exceedingly controversial. The most apparently convincing examples of it belong to the realms of logic and mathematics. In order that we may realise how the existence of *a priori* knowledge is possible, let us take as an example our knowledge of the fact that two and two make four. How do we come to know this fact? It is, no doubt, necessary in the first place that we should have some actual experience of concrete objects such as counters. The child learning arithmetic actually handles such objects, and is made to realise that any pair of them, when combined with any other pair of them, makes four. The next stage is the realisation of the truth, that this fact in no way depends upon the nature of the objects counted in order that it may be a fact; that it is, in short, a fact not only with regard to those objects which have been actually counted, but with regard to all objects of whatever kind, both those which have been counted and those which have not. No additional number of instances is, therefore, required to establish the truth of the general proposition that two and two make four, which is seen to be independent of any of the instances by which it happens to have been verified.

When we grasp the truth of a general mathematical proposition of this kind, our minds make a jump from the actual instances in which the truth of the proposition has been verified to the realisation of the truth of all instances of it, both verified and unverified—that is to say, to the apprehension of the general proposition itself. Now, since the general proposition embraces instances which have not been experienced, our knowledge of it cannot be based entirely upon experience. Experience of instances, though necessary to draw our attention to this piece of general knowledge, does not itself constitute its sole ground, nor does our knowledge of the general proposition, once it has been obtained, depend upon the instances we have examined. One way of putting this is to say that although all our knowledge begins with experience, it does not all spring from it, and the knowledge which does not spring from experience is what is called *a priori*. It is knowledge which we have had, in a sense, all the time, but to the existence of which the instances actually experienced have been necessary to draw our attention.

In asserting that there is knowledge of this kind the rationalists were right, and the empiricists, in so far as they denied it, were wrong. Although, therefore, we usually find it impossible to agree with Descartes that we do, in fact, know *a priori* many of the things which he thought we did, we may agree with him that this sort of knowledge is at least possible. If we assume that there is *a priori* knowledge, then it will follow that we know many things that we shall be unable to prove; that they should be self-evident to the intellect will be a sufficient guarantee of their truth. Thus we find Descartes saying that knowledge is given by the clear vision of the intellect; that I should clearly and distinctly conceive something in my mind is, in other words, for him a sufficient reason for regarding what I clearly and distinctly conceive as true. It is, therefore, unfortunate that we should be unable to agree with regard to many of the things which Descartes clearly and distinctly conceived that they are true. For example, Descartes set himself to doubt everything that he reasonably could, and came to the conclusion that the only thing that he could not doubt by any possibility was the fact that he was doubting; if he was doubting, he was thinking, a process which implied that he was a self-conscious reflective being. From this he deduced the famous proposition which is the foundation of his metaphysics, " I think, therefore I am."

In this apparently incontrovertible statement there are two serious difficulties. The first is the inference from the fact of consciousness to the existence of a personal, continuing ego underlying consciousness. Because there is consciousness Descartes assumed that there must be an " I " to be conscious, and that the " I " who is conscious at one moment is identical with the " I " who is conscious at the next. There is no ground for this assumption; the unity of the self depends upon memory, which links together a string of different psychical events, each of which, taken separately, is more certain than the string of events as a whole. When Descartes speaks of " I " he is postulating a mythical, continuing entity, the self, to which the successive psychical states happen, but which is nevertheless other than the states through which it passes, when we have empirical evidence only for a succession of states. There is, in other words, no *a priori* knowledge of the self; there is only experience of a given psychical state.

The remark "I think, therefore I am" is in the second place unfortunate, because it suggests that mind knows itself more easily than it knows its objects, a suggestion which is presently found to lead to the assertion that mind only knows its own states. The belief that the objects of our knowledge are mental, a belief which was supported by very convincing arguments by the philosopher Berkeley, has given to philosophy an unfortunate subjectivist bias from which it is only now beginning to recover.

Following out the implications of his initial proposition, Descartes was led to maintain a sharp distinction between mind and what was not mind, a distinction which involved in its turn a complete separation of mind from body. The science of dynamics was rapidly developing in Descartes' time, and seemed to show that, given certain data, the motions of matter could be calculated mathematically; if this were true, the motions of matter were mechanical and determined. Now, the body was a collection of material particles; therefore the motions of the body were mechanical and determined, and, if the mind were part of or continuous with the body, this conclusion would be true also of the mind. This result was distasteful to philosophers who wanted to believe that mind was free, and taken in connection with Descartes' original remark "I think, therefore I am," which implies, as I pointed out above, that the primary objects of mind's knowledge are its own states and not objects external to itself, led him to maintain that the mind was completely independent of bodily influences.

The Supreme Substance, namely God, had, he held, created two substances, mind and matter; the essence of the mind is thought, and of matter extension or occupancy of space. So different are these two substances that they cannot possibly interact, and the followers of Descartes were led, therefore, to maintain that there is no effect of mind upon body or of body upon mind. Mind and body, according to this view, proceed on two parallel lines, but matters are so arranged that an event in the one is always accompanied by an event in the other. Thus, the fact that my body assumes a horizontal position when I will to lie down, does not mean that there is any causal connection between my willing and the movements of my body, any more than the fact of two perfectly accurate clocks ticking at the same moment implies that there is a connection between them. What it does point to is the active benevolence of God, who has provided for a continuous and miraculous synchronisation between mental and bodily events, without which human beings would be unable to survive. The knowledge of God's benevolent intervention in the affairs of the world is, it must be presumed, given *a priori*. The gulf which Descartes established between mind and body has had disastrous results for psychology, which has been engaged ever since in a more or less unsuccessful attempt to put together the pieces of the unity which Descartes destroyed. The difficulties of bringing together the two substances which Descartes so sharply divided are, indeed, almost insurmountable. If mind be really as different from matter as Descartes represented it to be, if mind and matter have no single attribute in common, it is impossible to conceive how they can ever establish contact much less interact with each other. The attributes of matter are shape, size, texture, weight, occupancy of space. and so forth; those of mind are wishes, volitions, thoughts, and ideas. Now, one piece of matter can affect another in virtue of the fact that each possesses qualities in common; a roller, for example, can crush a daisy since both have size, shape, and weight. But how can a roller crush a thought or be affected by a wish? If, therefore, we regard mind and matter as distinct substances, it seems impossible to explain their interaction except on the assumption of an indefinitely repeated series of divine miracles.

The resort to the benevolent intervention of God by philosophers in a difficulty was a feature of the seventeenth and eighteenth centuries, and the operations of divine goodness in earthly affairs are invoked even more frequently in Leibniz's philosophy than in that of Descartes. Leibniz (1646-1716) rejected Descartes' dualism between mind and matter, but accepted his view of the impossibility of interaction between different substances. Of these different substances, which he called "spiritual monads,"* he held that there was an infinite number. Since no monad could interact with any other monad, there could be no causal connection between anything that happens in one monad and anything that happens elsewhere in the universe. Nevertheless, Leibniz believed that there was a point-to-point correspondence between the development of one monad and that of the others, so that any event in one is accompanied by corresponding events in all the others. Since each monad registers all the events which occur in all the other monads that there are, we may say that each monad reflects or is a mirror of the universe. We cannot, however, suppose that one monad knows another one, since, if it did, it would be causally affected by the monad known, and we are explicitly told that the connection between it and the other monads is not a causal one. For this reason Leibniz called the monads "windowless," the word being intended to signify that each monad is completely shut up within the world of its own experience. The fact that the monads, although they do not know each other and are not affected by each other, nevertheless keep step, is to be explained by the conception of the pre-established harmony of the universe, a harmony which is the work of the Creator, who ordered everything in the universe in the best possible manner. Our knowledge of the existence of this harmony must again be presumed to be *a priori*, since, as Voltaire showed in *Candide*, attempts to demonstrate it by experience are not as successful as could be wished. Leibniz's system, fantastic as it may seem, is important, not only on its own account, but also because it laid one of the foundations of the philosophy of Idealism, another line of approach to which will be pursued in the next chapter. According to Idealism, matter is an illusion and everything in the world is mental. The way for this conception had, as we have seen, already been prepared by Descartes' view that the mind has direct knowledge only of its own mental states. Leibniz's philosophy reinforces the same conclusion in two ways.

---

* The word monad is usually employed to denote an ultimate spiritual unit, just as the word atom means an ultimate material unit.

In the first place, let us ask what is our chief reason for believing in the existence of matter? The answer of the plain man would be that we are made directly aware of it by the experience of the outside world which we have through our senses. We seem, that is to say, when we perceive an object, to be brought into contact with something which is other than our own minds, but which produces an effect upon our minds, the effect being that which makes us say that we are seeing the object. To accept this common-sense account of perception would be, for Leibniz, tantamount to admitting that one monad could influence or affect another, since, as there are only monads in the universe, the apparently lifeless external object is really a collection of monads. Therefore, Leibniz regarded perception not as a process in which an object perceived affects a perceiving monad, but as an event in the perceiving monad which runs parallel with a similar event in the perceived monad.

From this it follows that we are never aware of any happening which is not a happening in ourselves; hence, we never experience an external world at all.

Since the happenings in ourselves, of which we are aware, are mental events, like thoughts, feelings, volitions, and so forth, the inference is that the world is composed of such events. It is not very clear why, if Leibniz had really, as his theory required him to maintain, developed a complete independence of everybody and everything else, he should have believed in the existence of anything except himself. If the answer is that his knowledge of other monads was *a priori* knowledge, and, as such, not derived from experience but given to him by God to begin with, it is necessary to inquire how he came to know that there was a God to endow him with *a priori* knowledge. He could only know of God's existence *a priori*, yet, unless there is a God, *a priori* knowledge is robbed of its validity and its certainty.

In apparent contradiction to the conclusion that we never perceive anything outside ourselves, Leibniz held that our belief in matter was the result of our confused way of perceiving the world. The monads vary in levels of mental development. A man's body, for example, is a group of innumerable monads, but his mind or soul, which is the central or guiding monad of the group, consists of one monad only. The monads have views of the world which vary in clearness according to their level of development, inferior monads mirroring the world, in the manner already explained, more obscurely than superior ones. The vision of even such a superior kind of monad as the human mind is infected with some degree of confusion, as a result of which we see the world as matter extended in space, instead of as a collection of mental monads. Only to God, who is the supreme monad, does the world appear as it really is, as a collection of self-contained monads.

There is thus introduced a distinction between reality and appearance, between the world as it really is and the world as it falsely appears to the partial vision of limited beings, the consequences of which are highly important in later philosophy. Some of these consequences we shall consider in connection with the philosophy of Hegel in Chapter V. For the present, it is sufficient to point out that some distinction of this kind is clearly necessary for any idealist philosophy, for any theory, that is to say, which regards the universe as fundamentally mental, since the universe as it appears is obviously nothing of the sort.

Thus Leibniz's conception of the partial, and therefore erroneous, view of the universe which is taken by the monads, provides the second foundation upon which subsequent idealist structures were based. It is important, however, to point out that, while most idealist thinkers who have maintained the distinction between appearance and reality have argued also that plurality (the existence of many different things in the universe) is an illusion and that reality is an all-embracing unity, Leibniz believed that plurality was ultimate, holding that reality was constituted by infinite numbers of diverse monads. These monads were not in any sense included in or absorbed by the supreme monad who is God.

CHAPTER IV

IDEALISM—I. *BERKELEY*

Perhaps the most important movement in the history of philosophy is that known as Idealism. Idealism has historically assumed a number of different forms, but all idealists concur in regarding matter as being in some sense unreal. The term was originally used to describe the view that the objects of our knowledge are our own ideas, but this by no means exhausts its usage. For example, philosophers who hold that there is only one thing in the universe and that the apparent differences between things are unreal, are also called "idealists." We shall give some of the grounds for this latter belief in our next chapter; in the present chapter we shall be concerned solely with that form of Idealism which asserts that, whether there are or are not entities in the universe which are not mental, it is true at least of everything that we know or can know that it is mental. If this assertion can be satisfactorily established, it affords considerable ground for the presumption that the universe, as a whole, is mental, since we have no reason for assuming that the parts of the universe that we do not know are of an entirely different character from those that we do.

The theory, then, which we propose to outline holds that the objects of our knowledge are mental entities, that they are, that is to say, sensations and ideas. This view was advocated early in the eighteenth century by Bishop Berkeley (1685-1753), and the arguments which I am going to give are, in the main, derived from his writings.

It will be desirable to preface these arguments with a few remarks designed to place Berkeley's philosophy in its proper historical perspective. In the last chapter I endeavoured to give an account of the difference between Rationalism and Empiricism, a difference which consists chiefly in the rationalist's assertion of the existence of *a priori* knowledge, and in the empiricist's denial of that assertion.

Descartes, it will be remembered, held that the mind is equipped initially with certain general ideas, in virtue of which it knows a number of truths *a priori.* Although experience may be necessary to elicit this knowledge, to bring it, as it were, into consciousness, the knowledge is not itself derived from experience. The principles of mathematics and the laws of logic were thought to be known in this way, and the rationalists' contention was that by reasoning in accordance with these laws and conformably with certain other general principles also known *a priori,* it was possible to arrive at true conclusions about the universe. We have seen how the conclusions at which Leibniz arrived by *a priori* methods were idealistic in character, in the sense that they purported to show that the universe was composed of experiencing units called "monads," and Descartes' philosophy, though he admitted the existence of matter which he thought was revealed to us *a priori,* tended to show that matter could not be known by sense experience.

Berkeley's immediate predecessor, Locke (1632-1704), the first of the empiricists, had severely criticised the assumptions and methods of the rationalists. In particular, he endeavoured to show that we have no innate ideas in virtue of which we possess knowledge which has been derived otherwise than from experience, and that all our knowledge is, therefore, derived from experience. This amounts to a denial of the existence of *a priori* knowledge. Berkeley accepted this part of Locke's philosophy, and devoted considerable space to proving that there are no such things as abstract, general ideas. The rationalists, for example, had maintained that the mind possesses a general idea of such an entity as a triangle, which constitutes an example of *a priori* knowledge. When, they said, you think of a triangle you are obviously not thinking of any particular triangle, but of a general concept of a triangle, which you possess *a priori.* It is because you have this general concept, as it were, to begin with, that, when you come across particular triangles, you recognise them as special examples of your general concept. Otherwise, unless you somehow knew what a triangle was to begin with, you would never recognise an actual triangle, when you met it in everyday experience. As Plato put it, we can never have new knowledge, for either we know what we want to know already, in which case our knowledge will not be new, or we do not, in which case, when we come across what we want to know, we shall not be able to recognise it as the thing we were looking for. The rationalists' answer to this difficulty was to deny that our knowledge of the first particular triangle met with in experience is new, the denial being based on the ground that we know, and always have known, a triangle *a priori*. We have, that is to say, an abstract general idea of a triangle, and in virtue of this general idea, when we meet a particular triangle for the first time we recognise it as belonging to the type exemplified by the general idea.

Now, Berkeley was at pains to deny this conclusion. To admit that we have a general idea of a triangle, which is other than our experience of individual triangles, would be to admit the existence of *a priori* knowledge, since, as nobody has ever experienced a triangle which was not an individual triangle, the general idea of a triangle, if there were such an idea, could not have been reached through experience. Therefore, we find Berkeley roundly asserting that, when we think of a triangle, what is a fact in front of our minds is not a general, abstract, idea, but the idea of a particular individual triangle that we happen to have experienced.

But Locke, in Berkeley's view, had not pushed his denial of *a priori* knowledge far enough. He had, for example, maintained that there is a thing called "substance," which is, as it were, the raw material of the universe to which are attached all the qualities in virtue of which we distinguish one thing from another. Now, Berkeley's philosophy, as we shall see in a moment, is devoted to proving that we never have experience of this substance, but only of the qualities which substance, if it existed, might be expected to exhibit. If, then, we never experience substance, we can only know it *a priori* in virtue of the fact that we have a general idea of it. But, if we are consistent in our denial of the existence of *a priori* knowledge, it is clear that we cannot know substance *a priori;* therefore we have no general idea of it, therefore we cannot know it at all, therefore there is no reason to suppose that it exists. If there is no substance in the universe, there is no matter in the universe either; therefore all that exist are mind and the qualities which mind knows. Thus, through his denial of the existence of *a priori* knowledge Berkeley arrives at an idealistic view of the universe, which is not very far removed, so far at least as its picture of the outside world is concerned, from that of Leibniz.

We are now in a position to consider the positive arguments which Berkeley uses to establish his view that the only things we experience are mental entities.

Let us suppose that I press my tongue against my teeth and ask the question: " What is it that I experience or am aware of?" At first sight the answer would appear to be: " I am aware of my teeth." But is this answer really correct? Is not what I really experience a feeling in my tongue—a feeling caused by the contact between my tongue and my teeth, but a feeling, nevertheless, and, being a feeling, something that is mental? Suppose now that I press my fingers against the table, is what I experience the table? Again the obvious answer proves on examination to be incorrect. The immediate object of my experience, that of which I am aware, is a sensation in my fingers, a sensation in this case of hardness, smoothness, and coolness. Let us take a further example. If I stand two feet away from the fire, I experience heat, and say that the heat is a property of the fire. If, however, I move nearer to the fire, the heat increases in intensity until it becomes a pain. Now, the pain is clearly in me and not in the fire; since, then, the pain is only a more intense degree of the heat, the inference is that the heat also was a sensation of mine, and not a property of the fire. The leg of a cheese-mite is so small that, except with the aid of a microscope, I cannot see it. Are we, then, to suppose that the cheese-mite cannot see its own leg? This seems unlikely. We must infer, then, that the size of the cheese-mite's leg varies according to the nature of the mind perceiving it, that the leg has, in other words, one size for the cheese-mite and another for ourselves. But the leg cannot have two different sizes at the same time; hence the size turns out to be a property of our seeing, and not of the object seen; it is, in other words, not an intrinsic property of the object seen, but relative to and dependent upon the nature of the perceiver's mind.

By similar arguments it can be shown that all the qualities apparently possessed by material objects in their own right turn out on examination to be feelings or sensations or ideas on the part of the perceiver. This conclusion is reinforced by the scientific account of perception. What precisely is it that, according to the scientist, occurs when we see something? Taking first the case of visual sensations, we find that their causation is roughly described in the following terms: A physical object sends out rays of light which, after travelling through the ether, impinge upon the optical nerves; the resulting disturbance in the optical nerves is conveyed along neural chords to the brain, where it causes a further disturbance in the cerebral cortex. It is our consciousness of this disturbance in the cerebral cortex which constitutes our seeing of the object. Similarly with regard to hearing; a sound is a vibration in the atmosphere; this vibration impinges upon our ear-drums; the effect produced upon the ear-drums is conveyed by the nerves to the brain; here it causes a disturbance of which we become conscious, and our consciousness of the cerebral disturbance is called hearing the sound.

Describing this process in metaphorical language, we may say that the brain is like a dark cabinet containing a brightly lit screen which is illuminated by consciousness. The objects* in the external world which we experience stimulate our senses; the stimulus is conveyed by the sense organs and nerves into the dark cabinet, with the result that images or reflections of the objects causing the stimulus are cast upon the lighted screen. Hence, we may say that what is called knowing an object consists in the appearance of an image or reflection of the object which, as we say, we know, on the screen in the brain which is lit up by our consciousness. Knowledge, therefore, is a process in which three distinct entities are involved: the knowing mind (*a*), the external object (*b*), and the representations or images of the object in the brain (*c*): (*a*) always knows (*c*) but never does and never can know (*b*), since, whenever it tries to do so, the images or reflections of (*b*)—that is to say, (*c*)—insist on intervening and being known instead. Having proceeded so far, we may now put the question: Is it really necessary to retain (*b*) at all? If it be a fact that we never know (*b*), we cannot know anything about it; we cannot, therefore, know that it exists or even that it has the property of being able to cause (*c*).

---

* This conception, as will appear in a moment, does not represent Berkeley's view, because it retains the notion of the external object. In coincides more

But, it may be urged, there must be something to cause the sensations and ideas which, according to the preceding analysis, are the objects of our knowledge; there must, in short, be a world of objects external to and independent of ourselves, even if these objects are very unlike the representations of them in consciousness which we already know. This, indeed, is the position of Locke, who, as I pointed out earlier in the chapter, retained a belief in the existence of substance. Locke made a distinction between primary and secondary qualities. Secondary qualities, such as colour, temperature, taste, he showed by arguments similar to those employed above to be sensations or ideas in the mind of the perceiver; but primary

---

nearly with that of Locke, whose view is sometimes called Representationalism, because it suggests that we know the images or *representations* of external objects.

qualities such as shape, weight, position in space, number, and so forth, he regarded as independent of the perceiver, and as existing, therefore, in the external world in their own right. And as they could not exist *in vacuo,* he postulated an entity called "substance" to act as a kind of foundation or substratum for the primary qualities, a something in which they could inhere.

For Locke, therefore, there was an external world independent of perception, which was composed of substance and of the primary qualities inhering in substance. Berkeley departs from Locke in two particulars; he abolishes the distinction between primary and secondary qualities, and, as we have seen, he eliminates substance.

Let us take each point separately. So far as the qualities are concerned, the distinction between primary and secondary qualities is clearly arbitrary. Any arguments which show that a secondary quality, heat, for example, is an idea in the mind of the perceiver apply also to size or hardness. When we were engaged in showing how the qualities of the alleged external object turned out to be not properties of the object, but characteristics of our perception of the object, we did not find it necessary to make any exceptions. The hardness of the table and the size of the cheese-mite's leg were revealed on analysis as properties relative to and dependent upon the nature of the perceiver, and, therefore, in the last resort, as ideas in the perceiver's mind, just as evidently as the heat of the fire.

This brings us to the second point. Let us suppose that you take an object and one by one strip away all its qualities. What is left? Consider, for example, a chocolate. A chocolate is brown, soft, sticky, and sweet to the taste. Let us abstract these qualities one by one and consider what remains. What is it that had the qualities, but now has them no longer? We may say, of course, that what is left is the chocolate minus its colour, consistency and taste, but is this residue anything at all? If it is, it is only so in virtue of such qualities as we may have left remaining in it; if these qualities, too, were taken away, there would be literally nothing left. There is, that is to say, no substratum or foundation in which the qualities inhere, which is itself without qualities and other than they. Locke's substance is, in other words, a pure myth. If, therefore, the qualities turn out to be ideas in the mind of the perceiver, and if there is no substance or material foundation besides the qualities, there is nothing left except mind. Matter, therefore, is an illusion. This is not to say that the tables and chairs which we know in everyday life do not exist, but merely that they turn out on analysis to be ideas in the mind of the perceiver. Hence, their existence consists in their being perceived or known. According to Bishop Berkeley the ideas we know do, in fact, exist independently of *our* knowledge, since they continue to exist as ideas in the mind of God. The whole of what we call the external world, therefore, continues to exist, in Berkeley's theory, even when we cease to perceive it, because God's perception sustains it. It is, however, clear that, unless we are prepared to follow Berkeley in introducing God to give independent reality to a world whose existence, apart from knowledge, has been destroyed, we are reduced to the position that the only things which exist are our mental states and our knowledge of them.

CHAPTER V

IDEALISM—II. *KANT AND HEGEL*

In the last chapter I described the philosophy sometimes known as Subjective Idealism, which asserts that the objects of my knowledge are my own sensations and ideas. This assertion is tantamount to the belief that the succession of ideas and sensations which constitute my experience are the sole entities in the universe; at any rate, if anything else does exist, I cannot know it. Philosophy could not long rest in this position, which is known as Solipsism, and later forms of Idealism consist, therefore, very largely of a series of attempts to escape from the conclusions to which Berkeley's arguments, when logically pressed, as they were by Hume, seemed to lead. Of these attempts the most famous are those of Kant and Hegel. Their philosophies are unfortunately exceedingly difficult, and I cannot do more than indicate in the briefest outline some of the positions which they maintained.

Kant (1724-1804) held that there were two distinct realms inhabited by two distinct classes of entities: there was the realm of things as they are, and the realm of things as they appear to the knowing mind. Because of this distinction we can never know anything as it really is. What is the reason for this assertion?

According to Kant the mind is furnished initially with a number of general ideas or concepts, which he called "principles of understanding," which form a sort of framework into which everything that we know is fitted, and with which it must conform. In being made to fit into and conform with this framework it is insensibly altered. Putting the point in another way, we may say that, in order that a thing may be known, it must satisfy certain conditions; these conditions are imposed upon it by the knowing mind, so that, as known, it is literally a different thing from what it was before it was known. An example will serve to make the point plainer. Let us suppose that I am born with a pair of blue spectacles permanently affixed to my nose; everything that I see will be blue, and I shall affirm, therefore, that blueness is a universal quality of objects. In this I shall be mistaken; blueness, in the case in question, will be not a property which belongs to things in their own right, but a quality imposed upon them by the peculiar conditions of my seeing; that things should appear to me to be blue is, in other words, a condition of my seeing them at all. Now, according to Kant, the mind is fitted with a number of different sets of mental spectacles which insensibly transform everything that the mind knows, just as, in the instance given, the blue spectacles altered what my eyes saw. In point of fact, Kant held that there are two different kinds of mental spectacles. The first, which are called " forms of intuition," are time and space. All our sense impressions are subject to time, and all those which come to us from outside to space. As a consequence, time and space pervade everything that we know of the external world.

When we experience this external world, what is actually given to us is a crude, formless stuff, which Kant calls " matter." This stuff is apprehended under the forms of intuition, as a result of which the things we perceive appear to us to be related together in time and in space, so that everything we know is here or there, and then or now. As the result, therefore, of the operations of the first set of mental spectacles, the world appears to us to be in time and in space.

The second set of mental spectacles, which Kant called " categories " or " principles of understanding," now comes into play. Examples of these are quality, quantity, substance, and causality. The categories endow what we perceive with those universal attributes which everything that we know is found to possess. When we come to reflect on the nature of the things we know, we realise that each has substance, is of a certain quantity, exhibits certain qualities, and is at once the cause and the effect of something else. When, therefore, Kant says we apprehend the given material of experience under the forms of the categories, he means that the mind combines what comes to it from without with a number of mental constituents, of which quantity, quality, and the rest are examples. Hence, the object we know is a composite object; it consists of a non-mental ingredient, a sort of raw stuff or material which has been worked up by the forms of intuition and the categories into something we can not only know, but recognise. It is by means of the categories, that is to say, that we can recognise the black patch surmounted by a pink blob that we see in the street as a man.

The above by no means exhausts Kant's account of the mental functions which we perform upon the raw material which is given to us in sensation, but it will serve to indicate the kind of unceasing mental activity which he believes to be going on all the time as an accompaniment, or rather as an integral part of experence. The world as we know it, the world, that is to say, that our minds have insensibly transformed in the process of knowing, is called by Kant the world of *phenomena*. Of this world Berkeley's conclusions are true; its existence, that is to say, consists in being known, and, if it were to cease to be known, it would cease to exist. But to the world as it is, the world that is independent of our knowledge, called by Kant " the world of *noumena* " (*noumena* means things in themselves), Berkeley's conclusions do not apply.

Kant's system seeks to provide an answer to another of the fundamental questions of philosophy, the question, namely, of why it is that the laws of our thinking should apply to the behaviour of things. The laws of logic and the formulæ of mathematics are mental products; they are, that is to say, prima facie statements about the way in which the mind works. We think that three and two make five, that every effect must have a cause, and that a tree cannot both be and not be a beech, because our minds are made like that. It is conceivable that creatures with minds differently constituted—Martians, for example, or white ants—might hold different views. Certainly there is no necessary reason why the universe should be of such a kind as to conform to the way in which our minds happen to work, why, in other words, the truth that three and two make five, a truth reached by purely mental processes, should apply to the behaviour of things.

This question is raised in an acute form by the possibility and the success of science. The procedure of the scientist occupies a position midway between the process of reasoning and that of sense experience. Like mathematics or logic, it involves reasoning; but unlike them, it checks the results of reasoning by the appeal to sense experience; scientific conclusions, in short, are verified. The existence and validity of mathematics provide no problem, for here reason operates entirely within her own sphere, and the results at which she arrives have not to be checked by experience. Again, there is no problem in the fact that sense experience should be possible, since we have five senses through which this experience comes. The puzzle is why the conclusions of the former should apply to the raw material provided by the latter? That they do, in fact, apply, the success of science demonstrates, the method of science being to employ formulæ arrived at by reasoning process, and apply them to the behaviour of things. Science arrives, for example, at a general law like the law of gravitation, and predicts that the behaviour of things which have never been experienced will conform to it. And, when the experiment is made, they do, in fact, conform. A scientific law is, in other words, the result of the application of mathematical and logical reasoning to actual experience, and the problem is, why should things behave according to the expectations which reasoning leads us to form of them?

Now, Kant's answer to this problem brings us back to the controversy between the rationalists and the empiricists, at which we have already glanced in Chapter III. That there is a distinction between the things we experience through our senses and the things we know by means of our understanding, between the pairs of objects which the child adds together to make four and the general proposition that two and two make four, is obvious. Since, then, our general ideas are other than the individual particular things we immediately experience through our senses, the question arises: Why should our general ideas, which are *a priori,* be true of or apply to the things we immediately experience; why, to take a concrete example, should the general law that the attraction between bodies varies inversely with the square of the distance that separates them, apply to the things we know by means of our senses?

It was this problem which more than any other had led to the controversy between rationalists and empiricists. The rationalists had tended to reason away the actual stuff of our sense experience; they were concerned with the world as it ought to be, not in the moral sense of the word "ought," but in the sense in which ought implies necessity. In mathematics, for example, everything follows necessarily from everything else, and there is no place for anything which just is, in the sense that it could not have been deduced from something else. Hence, the rationalists, when faced with facts like the specific gravity of gold and its yellow colour, a combination which just is, but which could not have been deduced, tended to ignore it. They left out, that is to say, the observation of actual fact. The empiricists, realising that no amount of reasoning will inform you of the nature of what actually exists, and that if, therefore, you want to know what is, you must go and see, relied entirely upon sense experience for knowledge, affirming that there was nothing in knowledge which had not previously been sense experience. Just as the rationalists made no provision for our observation of actual fact, so the empiricists made no provision for the general principles governing our observation, the principles, for example, in virtue of which we arrange, compare, group together, or select from what we observe in order to form general ideas. They denied, in fact, the existence of general principles altogether. Thus, if the empiricists were right, reasoned knowledge was impossible; if the rationalists were right, it would be impossible to explain how there were things to know. Nevertheless, it was perfectly clear that we did reason about and arrange our sense impressions, and that conclusions reached by mental processes did, in fact, apply to the world around us. The problem was, therefore, to find a *modus vivendi* between the rationalists and the empiricists, a *modus vivendi* which would reconcile the empiricists' insistence upon the observation of actual fact as the raw material of our experience, with the general principles of reasoning which, as the rationalists had shown, were used in working up this raw material into knowledge.

It is to the solution of this difficulty that Kant applied himself. Given the problem that experience provides us only with the raw stuff of perception, but that we, nevertheless, form general principles to which Nature is found to conform, Kant's solution consists in effect in denying that the stuff of perception really is raw. In point of fact, he says, we never do have experience of things as they are. What we do know is not raw material coming to us direct from the outer world and therefore revealing the outer world as it is, but a composite object, which has already been worked up and modelled by our understandings in the process of being known. This being so, it is only to be expected that it should conform to the general laws which our understanding prescribes. The rationalists' principles of reason apply, therefore, to the empiricists' raw material of experience because the material is not raw after all, but, if I may be forgiven the metaphor, has already been cooked in the process of reaching the understanding. Thus, the laws of thought apply to the world that we know—that is to say, to the world of phenomena—simply because that is a world which thought itself, in accordance with the principles of the understanding, has constructed. Whether they apply to things in themselves, we do not know; but this is of no importance since we never know things in themselves.

Kant's great contribution to philosophy is, therefore, to stress the activity of the experiencing subject. The mind in perception is not passive, but active. It acts as a lawgiver to Nature, prescribing to the world we know the forms and conditions under which it shall appear to us. Thus, when we come to ask how it is that we already have knowledge *a priori* about the world which appears to us, Kant answers that it is because this same knowledge has been at work in constructing what appears. The law of cause and effect is admittedly a piece of mental apparatus, but it is valid for all that in the world we know, since the world we know is also a product of the same mental apparatus. Thus, we know *a priori* of things only what we have ourselves put into them.

Kant's system is exposed to a number of serious objections, into which we cannot here enter. It should, however, be stated that nobody now maintains Kant's distinction between the world of phenomena and the world of noumena, at any rate, in the form in which Kant himself advanced it. Kant himself was, indeed, forced to abandon it when he proceeded to consider the problems of ethics. His ethical theory is peculiar, and, as it springs directly from his metaphysical view, I propose very briefly to outline it here. Kant divided our mental faculties into three groups: the senses, the intellect, and the will. The senses and the intellect, as we have seen, are employed in manipulating, schematising, and generally working up into a form suitable for our knowledge the material which comes to us from the outside world. But, when we will something, we have, according to Kant, knowledge that is neither sensuous nor intellectual. There is no outside world here between which and us the intellect and the senses intervene; there are no forms of space and time through which our perceptions reach us. The exercise of the will brings with it a capacity for free activity, in virtue of which we can use our sensuous and intellectual knowledge as we please; it brings also a sense of emancipation both from the law of cause and effect which dominates the world of phenomena, and from the necessity by which the operations of reason are constrained.

Now, in so far as we act according to desire, Kant held that we are not free. The origin of our desires may be explained in one or other of two ways: they are either the result of events occurring in our body (for example, food is desired because of a deficiency of chemical substances in the body, sexual desires are bound up with the changes in the body which take place at puberty), or else they spring from and are conditioned by our dispositions and temperaments. In so far as you can say of a man, "He will fly into a rage, because he has a passionate disposition," you are predicting his actions in virtue of your knowledge of his temperament, and in so far as your prediction is correct, his desire and action are dictated by his temperament, and are not, therefore, free.

As creatures of desire we belong, for Kant, to the phenomenal world, and our feelings and the actions which spring from them are as much determined as the movements of matter in the physical world; they are, that is to say, subject to the law of cause and effect and are not, therefore, free. But, when we act in accordance with the law which our will prescribes, we are lifted out of the phenomenal world and are in direct touch with the world of reality; and, in so far as man wills freely in accordance with the laws of his nature, he is himself *noumenal*.

Man as a creature of desire is subject to the law of cause and effect which governs the phenomenal world; but when he prescribes to himself, irrespective of circumstances and desires, the law of self-government and duty from which springs morality, he is free. What is more he is moral, for, since the will prescribes the moral law, to act freely—that is to say, in accordance with the will—is to act rightly. " There is nothing in the world—nay, even beyond the world," said Kant, " . . . which can be regarded as good without qualification, saving alone a good will." If we ask in what acting rightly consists, Kant's answer is unfortunately not very helpful. What the will prescribes is that we should act in every case upon general principles which are intuitively recognised as morally binding. These general principles are of the kind which everybody acknowledges irrespective of their needs and circumstances, for example, that we should not tell lies, that kindness is better than cruelty, honesty better than deceit, and so forth. Nor are they in any way opposed to reason. On the contrary, if we investigate the deliverances of our will by means of the reason, which Kant called in this connection " the practical reason," we realise that the general principles which the will prescribes are the only ones which are not self-contradictory. There is, for example, no contradiction inherent in the precept that everybody should tell the truth; but if, to return to an example we have already used, everybody were to lie, nobody would believe anybody else, and there would be no point, therefore, in lying. This is what Kant means by saying that wrong conduct is self-contradictory; it cannot be universalised without stultifying itself. Hence, Kant's famous precept: " Act only acccording to that maxim which you can at the same time will to be a universal law."

As an account of the nature and authority of our general moral principles, this doctrine, which depends upon Kant's metaphysical position, may command respect, but it gives us no guidance in the actual circumstances of daily life. Kant affirms, for example, that the will prescribes truth telling as a categorically binding general principle; as such it admits of no exceptions. But there are occasions in which the telling of a lie may be justified in actual life on the ground that the consequences of truth telling would be harmful. Ought we, for example, to tell the truth to a potential murderer, who asks where an innocent person whom he proposes to kill is hiding? Most people would say that we ought not, but, whatever view we take of the matter, Kant's universally binding principle affords us little assistance. It seems difficult in practice to decide between alternative courses of actions except by reference to their consequences, and this alternative criterion of right conduct, which the Utilitarians stressed,* is implicitly excluded by Kant's moral system.

Hegel (1770-1831) followed Kant in maintaining a distinction between the world of appearance and the world of reality, but in his philosophy the world of reality is differently conceived. Instead of containing the many noumena of Kant's system, it is or contains one thing only—namely, the Absolute, and this Absolute is not only reality itself, but the world of appearance also. The universe, in fact, is one all-embracing unity such that all distinctions are illusory, and plurality (the appearance, that is to say, of there being many things) unreal; the universe is also mental. How is this conclusion reached? Let me try to summarise the sort of considerations that Hegel stressed.

If we consider the nature of any object, we find that, in order that it may be completely understood, it involves a necessary reference to other objects; taken by itself it is not self-sufficient and not, therefore, intelligible. A hen's egg, for example, is less round than a ball, more brittle than leather, larger than a sparrow's egg, smaller than an ostrich's, and so forth. If these facts were not facts about the hen's egg, it would be a different object from what it is; hence, we may say that these facts contribute to its being what it is. Now, each fact implies a relationship on the part of the egg to some other object; hence, its relationships to other objects are constitutive of the nature or being of the egg, since, as we have seen, without them it would be a different egg. But the egg is related—*e.g.*, by relations of likeness or unlikeness—to everything in the universe; therefore everything that is must be taken into account and understood before we can completely know the egg, simply because everything that is is implied in the egg being what it is. Hence, reality is a single indivisible whole or unity, the parts of which are related by relations which constitute the parts, and are constituted in their turn by them. *The differences between things are, therefore,* unreal.

---

* See Chapter VIII.

A similar conclusion applies to the processes of thought. Any so-called truth we like to assert involves the existence of the contrary untruth; this is the case not only with regard to isolated propositions, as, for example, that snow is white, but also with regard to theories which purport to be of universal application. The belief in free will, for example, is opposed by the contrary belief in determinism; each belief is irrefutable in relation to the facts with which it deals, yet, from the very circumstance of there being a contrary belief, neither taken by itself can be quite true. There must, then, be some wider truth which embraces both the partial truths asserted by the theories in question, by comprehending both theories within itself, and the mind, unable to rest in the incomplete truth, which can be contradicted, will be driven onward to embrace the wider truth. This wider truth, in its turn, will be confronted with its contrary, together with which it will be subsumed and embraced within the scope of a still wider truth. This process of comprehending partial and opposing truths under wider formulations, which transcend them both, continues indefinitely until we reach the final truth under which all partial truths and contraries are subsumed, and in which they are reconciled. This final truth will be the whole truth about everything; to it, therefore, there will be no contrary. It is, moreover, related to the whole about which it is the truth, since it applies to it and is true of it; it must, therefore, according to the preceding argument about relations, be continuous with it, forming with it a single, indivisible unity.

Now, a truth is mental; it is a characteristic of thoughts and presupposes a mind; therefore the whole with which the final truth is one is also mental. We thus arrive at the Absolute, the most striking conception of Hegel's philosophy, which is the name he gives to reality; this reality is a single unified whole, comprehending within itself all distinctions, including the distinction between mind and its objects, and embracing all differences. Our minds being but partial aspects of the Absolute take a partial and, therefore, partially false view of the universe which they contemplate, seeing it as a bundle of isolated things; it is only to the Absolute's view of itself, to an inkling of which we are enabled to reach through philosophy, that the universe is revealed as a single, indivisible unity. From this doctrine there follows an important theory as to the nature of truth.

The problem of truth and error is one of the most difficult in philosophy, and we cannot discuss it at any length here. If, however, I briefly indicate what may be regarded as the common-sense view of truth, it will be easier to see in what respect the Hegelian philosophy departs from it.

We should normally say that truth is a property of ideas or judgments. Facts are real and judgments are true. If, for example, a train leaves King's Cross for Edinburgh at 10 a.m., then the departure of the train at this time is a fact. If I judge or assert that it does, then we should say that my judgment or assertion is true, and it would be regarded as true because there is a fact, which is other than my judgment, with which the judgment corresponds. Truth, then, consists in correspondence between the idea or judgment which is true and a fact. It is a property of judgments, but whether a judgment has or has not the property will depend upon something other than the judgment—namely, a fact. Now, in order that we may hold this view, it is clear that such things as facts must exist. There must, in other words, be an isolated fact, which is self-sufficient in itself, which can, that is to say, be understood apart from its relations to other facts, in order that the judgment which purports to be true may correspond with it. Now this, as we have seen, is just what Hegel's philosophy denies. According to Hegel, there is *only one real fact in the universe—namely, the Absolute, and anything which is less* than the Absolute is not entirely and completely a fact. It is linked on to other facts, by relations which are not distinct from the facts they relate, and no single idea can therefore correspond to it. The only idea which could correspond to the whole complex of facts, of which the fact with which we began forms a fragmentary or unreal part, is a universal idea about everything, that is to say, about the Absolute. And a universal idea about everything is part of and continuous with that which is its object, since, as we have seen, the distinction between thought and object of thought is an unreal distinction. Now, the notion of correspondence postulates two entities between which there may be correspondence; if, therefore, our analysis shows that, when we think about something, there are not two entities involved—namely, thought and its object—but that thought and its object constitute an indissoluble unity, it is clear that the notion of correspondence as the meaning of truth must be given up. What is substituted is the notion of coherence or consistency. Truth consists, therefore, for Hegel, in the coherence of ideas one with another. Now, we have already seen that any single idea taken by itself involves the opposition of another contrary idea. The two ideas being contrary fail to cohere and are not, therefore, true. We are thus drawn forward to a wider idea which embraces them both within its scope, and so resolves the contradiction, in virtue of which they failed to cohere. This wider idea will, therefore, be truer than either of the partial ideas which are subsumed under it. The wider idea is opposed by its contrary, with which it also fails to cohere, and the two ideas are thus subsumed under a still wider idea, for which a still greater degree of truth may be claimed. But the truth of any single idea, however wide, must still be partial. For a single idea, when taken in isolation as one idea, is bereft of all the aspects and relations which link it on to other ideas and constitute it part of a whole, and it is thus different from what it would be when considered as a part of the whole. Now, if account were taken of all the relations of the partial idea to other partial ideas, we should be brought to the whole system of ideas for which alone absolute truth may be claimed. In other words, it is only in the Absolute that all the partial ideas are embraced and made to cohere, and only of the Absolute, therefore, that complete truth may be predicated. It follows that any partial truth is only partially true, a conclusion which applies both to the truth of Hegel's philosophy in general, and to his statement about the partial character of truth in particular.

CHAPTER VI

THE PHILOSOPHY OF CHANGE

I MENTIONED in the second chapter the view of the philosopher Heracleitus that everything is in a state of flux or change, and described the use made by Plato of this conception in his theory of ideas. We have now to consider a development of Heracleitus' position which has figured prominently in modern philosophy.

The notion that everything is changing has derived considerable support from the scientific doctrine of evolution. Evolution shows that the history of life, from its earliest manifestations in the jelly-fish and the amœba through the mesozoic reptiles and the vertebrate mammals to its latest representatives in the human race, is a process of continuous change and development. Attempts were made by the scientists of the last century to represent this process as a series of reactions to material influences, or of responses to physical stimuli. The evolution of life, they urged, is wholly explicable in terms of the adaptation of living creatures to their external environment, while, within the living creature itself, what is called the mind is a mere reflection or register of the events which occur in the body. Thus, the living is determined by the non-living, and within the living the mind is in all respects determined by the body.

This type of explanation is called mechanistic, since it conceives of the universe as a whole and of every living creature within the universe after the model of a machine. No part of the machine functions spontaneously, but every part is entirely determined by the activities of every other part to which it reacts. The universe, in short, is like the works of a gigantic clock. Someone, at some time or other, wound the clock up; thereafter it proceeds to function indefinitely through the mere automatic interaction of its parts. This is the conception of the universe which the philosopher Bergson, the leading modern exponent of the philosophy of change, set himself to challenge.

The materialists maintain that life, itself an offshoot of matter, is entirely determined in respect of all its activities by the matter from which it sprang. Bergson urges, on the contrary, that matter is a creation of life and is relative to the needs of living organisms. He begins, therefore, by marshalling a number of considerations both biological and psychological against the materialist view of the living creature as a machine determined by its external environment, and of the mind as a mere reflection or register of bodily events. Into these considerations we cannot here enter; all that we can do is to state the conclusion to which, in the light of them, Bergson is led, which is that the facts of biology and psychology are only explicable on the assumption that there is an ever-changing, ever-developing force behind the movement of evolution which expresses itself in all the manifold forms of life. This force is not material, but is the very stuff of which our consciousness is made, and in order to understand its nature, it is necessary to reflect upon what the fact of consciousness, of our own consciousness, that is to say, involves. It is this inquiry which Bergson undertakes at the beginning of his best-known work, *Creative Evolution*.

At first sight consciousness appears to consist of a succession of psychical states, each of which is a single and independent entity, these states being strung together along something which is called the "ego," like beads on a necklace. But—as we saw when discussing Descartes' axiom, "I think, therefore I am"—reflection shows this conception to be erroneous; and the error consists more particularly in the fact that, when we admit that one state changes and gives way to another, we overlook the fact that it changes even while it persists. "Take," says Bergson, "the most stable of internal states, the visual perception of a motionless object. The object may remain the same; I may look at it from the same side, at the same angle, in the same light: nevertheless, the vision I now have of it differs from that which I have just had, even if only because the one is an instant older than the other. My memory is there, which conveys something of the past into the present. My mental state, as it advances on the road of time, is continually swelling with the duration it accumulates." If this is the case with regard to our perception of external objects, it is even more true as a description of our internal states, our desires, our emotions, our willings, and so forth. The conclusion is, in Bergson's words, that "we change *without ceasing*, and the *state itself is nothing* but change." "There is no feeling, no idea, no volition which is not undergoing change at every moment: if a mental state ceased to vary, its duration would cease to flow."

It follows that there is no real difference between passing from one state to another and continuing in what is called the same state. We imagine such a difference because it is only when the continual change in any one state has become sufficiently marked to arrest our attention that we do, in fact, notice it, with the result that we assert that one state has given way to another. Thus, we postulate a series of successive mental states, because our attention is forced upon them in a series of successive mental acts. It is *for the same reason that we tend to regard our*selves as beings in whom something endures, in spite of change. Just as we say that there exist separate states which change, so we speak of a self which experiences changing psychic states, and this self, we say, endures. But we have no more experience of an unchanging ego than we have of an unchanging psychic state: however far we push our analysis, we never reach such an unchanging ego. There is, in fact, nothing which endures through change, because there is nothing which does not change.

trumpets, gashing their limbs with knives and drinking their blood and sprinkling therewith the passer-by: the Syrian Goddess, with her companion Adonis: the Phrygian Sabazius with his fictitious connection with Yahweh Sabaoth, the Most High: the Asiatic Cybele, along with Attis, and her mutilated flagellant priests, and orgies where sin was confessed and done penance for; and the allied rite of the Taurobolium, when blood of slaughtered bulls rained on devotees till they emerged "*reborn for eternity.*" It is worth pausing a moment on the cult of the Persian god Mithra, if only because it had recently a notoriety that we hold exaggerated, despite its intrinsic interest.

Mitra, a light-god, appears in the Veda (p. 15); appears, too, as Mithra in the Avesta (p 33) as god of heavenly light: he becomes god of truth and oaths; champion of Ahura Mazda against Dark, and friend of man. His cult developed independently of the Zarathustrian reform, and from 550-330 he is especially the god of the Kings. Having been carried to Mesopotamia, the cult was overlaid with astrological elements, and, after the conquests of Alexander, it took on its final shape and colour in Asia Minor, under pressure of Greek art and philosophy. The adaptable god went with slaves, armies and commerce to the very outposts of the Empire: by A.D. 100 his inscriptions begin to be found. We recall that there is hardly any written evidence: opinion must be formed from sculptured symbolic slabs, from shreds of allusion, from comparison with other cults based on an assumption that by now they all involved much the same notions. Matured Mazdeism evolved the idea of Infinite Time, parent of Good and Ill. This *may* be represented by the lion-headed figure found in some Mithraic centres, but anyhow stands outside the cult proper, and can here be neglected. Mithra, god of "diffused light," halfway between heaven and earth, was an "intermediate" god, but acquired many qualities of the sun-god, and eclipsed Ahura in imagination. The sun's birth over mountains or in the vault of the sky, suggested Mithra's birth from a rock, a birth later on placed on December 25, the winter solstice, when the *Natalis Solis Invicti* was feasted and when, in the West, Christmas was to be kept. The central episode of Mithra's career is the slaying of a bull, from whose tail wheat-ears sprout, while serpent and scorpion seek to poison his vitality. Among various sculptured incidents, too problematical to need allusion here, one represents the upward flight of Mithra along with the Sun, and his place beside Ahura (?) over the slaughtered bull. At the end of time, Mithra was to reappear, sacrifice another bull, give its fat mixed with haôma-juice to men who now left their tombs; and, fire devouring earth and all evil, blissful eternity begins. Worshippers were initiated through seven grades called Crow, Veiled, Soldier, Lion, Persian, Sun-Runner, Father. The first three grades contained "Servants"; the rest, "Participants." Admission to the Servants (children could be these) was called *Acceptio;* to the rest, *Traditio.* Women were quite excluded. The Patres directed worship, headed by a Pater Patrum with life-office. The ritual involved a purificatory bath; the taking of a sword and rejection of a garland by the Soldier; the placing of honey (an Egyptian preservative) on hands and tongue of Lion and Persian; and a sacred feast of bread and water, unless wine replaced the original Persian intoxicant, haôma. The worship occurred in crypts, with raised masonry platforms down the two sides for worshippers to lie on, and a sanctuary at the end, with its altar and sculptured slab. The confraternities (rather than congregations) were rigidly organised: slaves and free were on equal footing. The extreme difficulty of knowing for certain anything special about Mithraism causes us to include it among those "mystery cults" of which we will speak collectively in a moment. Enough to say that the ideas proper to the Avesta in its later form (p. 32) cannot safely be read into it. We have no knowledge of any ethic proper to it; its association with neurotic Oriental cults like Cybele's, and its connection with the army, argue against any special purity in it. Possibly the sturdy virtues of ancient Persia survived under the layers of Babylonian, Asiatic, and Hellenist material, but none can be sure. Its association with much nature-worship, again like that of Attis, assimilated it fatally to obscene and cruel cults; its affinity with solar worship caused it easily to be absorbed in the general pantheist sun-cult and philosophy in which the Empire ended (*infra*, p. 66, and *cf.* p. 5).

The mystery-religions form a group of cults without doubt Oriental in character and alien to Greek feeling, which was objective and naturalistic in its expression. They aimed at a social union with, rather than service of, the god concerned. A philosophy, quite possibly Indian in remote origin, elevated this union into sheer absorption into the divinity. Yet the mysteries, too, were nature-cult in origin. In various lands the god of vegetation, or earth-life generally, was felt to die, and to reappear next year. Often this was dramatically represented, and then a myth explained the drama. Such gods were Tammuz in Babylonia, Osiris in Egypt, Attis in Asia Minor, Adon in Syria, Koré (the " Maiden ") at Eleusis in Greece, etc. The death was shown as violent; the return to life was no less violently celebrated. But besides this, the ancient rite of a feeding on what represented or was sacred to or was inhabited by the god, was " socially " observed. A union was thus formed between worshippers and god and one another. Thus the tribe or clan was consolidated and revivified. Into this came the idea that after death the soul was saved from the many dangers of the unexplored other-world : its purification was hastened or un-needed. Thus two disparate ideas were combined—social prosperity in this life, the earlier one, and well-being in the next. The method of the mysteries was to create an impression on the imagination, indeed, the nerves, by dramatic shocks administered to the initiate : their system was also magical—the result was due wholly to the proper performance of a ritual and, indeed, pronunciation of formulas : as such they taught neither philosophy nor ethic; indeed, their sexual element needed vigorous allegorisation quite inaccessible to the average mind. The Roman, at last excitable and a-hunt for religious thrills, began to indulge in them, but even Neoplatonist ideals failed to make them last. A generation ago the theory was broached that St. Paul introduced their notions into Christianity. I hold firmly that neither his personal history and psychology, nor his diction, nor his doctrine support this; indeed, they contradict it. Moreover, the theory is losing caste. Enough to say that the mysteries testified to the most exalted and the most degraded tendencies of contemporary religious souls.

Together with this invasion of emotional religion came a Romanised version of Greek philosophy, especially Stoic. Only principles of Pleasure or of Renunciation suited the appalling conditions in which men had to live under a Caligula, a Nero, or a Domitian. Philosophy then ceased primarily to speculate and became a school of life: in the last resort, it was pessimist and fatalist: superficially it was emotional too, religious, and charitable. As a matter of fact, it branched into chill scepticism or superstition. Yet there was a popular apostolate, unlike Seneca's, for example, who was a "society" philosopher. An Apollonius of Tyana was a "revivalist," as we say, and worked miracles and preached from temple steps: a Musonius discoursed on chastity and on peace, to soldiers engaged in civil war at the gates of Rome: Dion Chrysostom, in beggar's dress, denounced wealth and vice in his genuine horror of the misery of nearly all mankind. Troops of sheer charlatans went about, like caricatures of mendicant friars, especially the Cynics, though some, like Demonax, were noble and beloved. Aristides (born 117), an Asiatic, became the protagonist of miracle-working shrines: Artemidorus of Daldis (died about 200) wrote five astounding books on dreams and their interpretation. This Freud-before-his-time differs from our contemporary chiefly in this: the worst things that the psycho-analyst takes our dreams to symbolise were then, apparently, along with the usual absurdities, the undisguised material of dreams. What, then, were men's waking thoughts? The clever ventriloquist Alexander of Abonoteichos had an army of spies throughout Europe, and confounded the Empire. A senator married his daughter "by the Moon." Country places remained conservative: and under the Antonines the Court grew pious, if not virtuous; but from 194-235 the Severi ruled and Syrian gods triumphed. It was now that the Sun and the Emperor, alike "Un-Conquered," filled men's eyes, givers of life, each Absolute. All the gods melted into this golden haze: the Ultimate *One* shone vaguely upon the world dedicated "To Eternity," under whose social surface crawled the obscene witches who cut the throats of babies to make their love-charms.

THE RELIGION OF THE HEBREWS

The Hebrews, Semite in origin, emigrated first from Babylonian Ur, then from Haran in Aram, led by Abram and his family group. They settled on both sides of the Jordan, about 2000 B.C. (he is most probably contemporary with Hammurabi, p. 40). Famine drove his descendants to settle on the east of the Egyptian delta; they left when (probably) reaction against Akhn-Aton (p. 37) left no tolerance for foreigners. They may have departed under Mer-n-Ptah, successor of Rameses II., by way of the Sinaitic peninsula. Moses, who led this exodus, welded the tribal groups into a true "people" by means of a Law imposed on them under divine sanction. After long fighting they established themselves in Canaan, and after a period of group-governors (Judges) they became one kingdom under Saul, David, Solomon (about 1000 B.C.). The kingdom then split into two, and a series of disasters, including wholesale deportations, befell them, under Babylonian, Persian, Græco-Asiatic attacks upon this folk which was placed astride the great communication line between north and south. Finally Jerusalem and its temple were destroyed, and the people dispersed, under Hadrian, A.D. 70.

The religious history of the Hebrews is one of constant upward development against psychological tendencies and environmental pressures such as is nowhere else diagnosed. On the theological considerations involved in this, a descriptive book neither need, nor must, nor can dwell. Hebrew tradition insists that the forefathers of Abram were idolatrous: that is, polytheist, and lacking none of the magical or fetishist tendencies of their stock. Even after the Exodus we see Joshua offering the people the choice between the religions of Canaan to which they had come, of Egypt which they had left, or of their historical leaders, to which he and his family meant to adhere. The Hebrews in fact constantly hark back to Egyptian elements (the golden calf in the desert, imaging Yahweh, *cf.* p. 35); " go whoring after " the gods of their neighbours, Ba'alim and the Asherah (p. 41) with their accompaniments of human sacrifice and ritual prostitution; even quite late the Temple is profaned by cults like that of Tammuz (p. 41). None the less, their literature makes it critically clear that the people, proverbially difficult to persuade, were consistently led to recognise in God, worshipped under the name Yahweh, not only the one whom they were to adore, but the only one who was adorable and as possessing not only a monarchy above gods, but as so *one* that the other gods were " nothingness," and again, so spiritual that no image of any sort must be made of Him. He was, moreover, seen not only as Creator of absolutely all things, including the heavenly bodies, and of man in a quite special way, so that man with one part of himself was affine to the rest of creation, and with another, was affine to God, and His " son," possessed by His " Spirit," but, as Lord of the whole world and destined to achieve therein His total and lasting triumph. This triumph was, too, conceived always, yet ever more clearly, in terms of righteousness: the contents of this term became more and more spiritually thought of, but, the moral life was always under a divine sanction, and " evil " held always the notion of " sin " behind or within it. Hence the ideas of the Nation, and of the World, do not exclude one another. However much Yahweh be seen as universal in His reach, yet the nation remains specially His Chosen: however much the Nation was His "son," the "Day of the Gentiles" was ever foreseen, whether interpreted as their destruction, subjugation, or conversion. Thus the Hebrews, never metaphysicians, achieved none the less a notion of God, as it were, in practical terms, wholly disentangled from nature-myth and from dualism, and still more from polytheism and its affinities. More slowly was He conceived as the God of the individual and more slowly still as God of tender love, though never was this notion lacking. Yet towards the end of Jewish history a certain ossification of the religion was taking place.

The sources of human authority among the Hebrews were Lawgivers, Kings, Priests and Prophets. These were often in conflict among themselves: constantly the prophet had to resist the king, and often the priest. The king, by marriages or personal taste, would tolerate pagan infiltrations; the priest might become a time-server or a legalist. Slowly an adjustment between the ancient Law and its representatives, and the soaring spirit of individuals, would be found, lost, and refound. This expressed itself not least in cult. Along with their Semite relatives, the Hebrews loved sacrifice. Sacrifice was not invented, but regulated and purified in meaning by Moses and his followers. The tendency always was to see that Yahweh took more "pleasure" in interior dispositions of the soul than in the external gift, and to look forward to the arrival of an "Anointed" who should offer the perfectly acceptable sacrifice to God. Thus the Hebrew always looked forward, and did so under stress of a conviction of Vocation, based on "promises" made by Yahweh. The indestructibility of the race, under unparalleled disasters, never dissipated the forward vision, while it constantly purified it at least among a few. Thus a race whose antiquity shone with no triumphs in science or philosophy or art or politics or sociology is none the less to-day still setting the gravest problems to the world.

Most slowly of all, ideas concerning survival developed. The Hebrew Sheol was apparently a place of gloom like the Vast Land of the Assyrian: reward belonged to this world—prosperity, or grateful memory. Towards the end, it was clear that the just, at any rate, survived, and should rise again to share in the triumph of the Messiah, whose figure had entered into a unique relationship with Yahweh, apparently pre-existing his earthly career, and certainly outlasting it. The final generations of Jewish history show an element of Alexandrian-Greek influence, and a new birth of eschatological apocalypsis: the history of the race, and of the world, were seen to interpenetrate, and the disasters of the people and its triumph became all but symbols of the cosmic cycle. At the birth of Christ, the elements most worth noticing are this apocalyptic, ecstatic one; the Hellenising one (Sadducees); the reactionary one (Pharisees); and the obscure, devout element, quiet and hopeful, called " the poor in heart."

CHRISTIANITY

During the procuratorship of Pontius Pilate in Judea, Jesus from Nazareth preached, enraging the Pharisees especially against his doctrine, which they considered blasphemous, inasmuch as He called Himself Son of God and Messiah, and injurious to their position as sole true observers of the Law. Causing Him to be regarded as defying the Roman rule, they obtained His condemnation from the procurator and He was crucified. After a short space, His followers began to proclaim Him not only Messiah, but as sealed so by God, who had raised Him from the dead. The Sadducees, disdaining this doctrine of resurrection, sought to have them suppressed; but not until they publicly insisted that the promises of God were for the world, nor only for the Jews, and, indeed, that the Jews had been notoriously unfaithful to them, did persecution break out and Stephen, a Greek-named convert, was killed. A leader in the subsequent persecution was Saul from Tarsus, a genius of mingled Hebrew, Greek, and Asiatic education and experience, and a Roman citizen. At the height of the persecution, he was himself converted. Already the Christians, as they were soon nicknamed, had spread beyond Jerusalem; now persecution, and the amazing energy and organising power of Paul, scattered them afar, or created distant groups throughout the Empire. The Christians were from the outset a "society," governed by the twelve apostles and their delegates; their faith was, too, a Doctrine, homogeneously taught by men of very varied mentalities. It can, taking the teaching of Peter, Paul, and John as a whole, which is legitimate, for they were conscious that there was no contradiction among them, be summarised as follows:

God created all that is, destining mankind to immortal happiness. He endowed man with a supernatural gift, Grace, freely re-destining him to supernatural vision of, love for, union with, and happiness in Himself. In the person of the first man, the race which was incorporate with him was deprived of this Grace owing to sin, and, supernaturally speaking, died. By incorporation with a second Adam, or head of the human race, man could regain this gift. God took up human nature, so uniting it with His own as to appear among men truly God, and truly man. Born of a virgin, Mary, He lived and taught and was crucified. In His person, therefore, and in His life culminating in life's last act, which is to die, He offered to God a worship truly human, since He was man, and adequate, since He was God. With Him, men are progressively incorporated, forming thus His Body which is the Church. This incorporation takes place by means of Baptism, and is nourished by the Eucharist, wherein at the Christian altar men receive His body and blood—that is, Himself really present there. Those who die thus incorporate with Christ, are destined to eternal bliss; those who die "out of" Christ are lost. But in God exists not only the Father, who thus sent His Son into the world, but the Spirit of God, who is neither

Son nor Father. Yet there is but one God. There were subsidiary doctrines, but these suffice. I add, that unless the radical one of Grace be understood, nothing in early or later Christianity will be understood. Enough then to recall that the first age of Christianity was dogmatic, hierarchic, and sacramental.

It developed partly by Christian thought playing on its own data; partly under pressure from without. As a doctrine, it found itself confronted with philosophies; and again, with Gnostic illuminism: as a society, with the Empire. Without delay, through Justin and Irenæus to Origen, and again through the Latin thinkers from Tertullian, the Christian religion elucidated itself. Greek writers utilised and adapted the category of Logos especially, to explain their doctrine of Christ to Stoicised thinkers: Latin ones, the notions of Law and of Army. In consequence, the Church, as containing a doctrine that could be thought, and a discipline that should be imposed, and a structure that must be preserved, became manifest. So much so, that the Empire saw it as an independent Society, a super-people, refusing to assimilate or to be assimilated. Hence the persecutions culminating in Diocletian's. But the second phase of the Church's development occurred after its liberation by Constantine. Then began that era of the "Fathers" or Doctors which endured (speaking roughly) till Augustine. Greek-trained intelligence mused, naturally, on the "mysteries" of the Trinity and the Incarnation by preference: Latin minds dealt more willingly with those of Sin, Will, Grace, and hierarchic government. Briefly, we must say that without the intellectual work now done, Alexandrian (Athanasius: Cyril) and Asiatic (the two Gregorys: Basil), neither clearness of thought nor accuracy of language would have survived, nor would Europe have so been trained as to enable her to resist Islam. As for Jerome, Ambrose, Augustine, they gave that Latin to the northern invaders, which also formed their minds and shaped their societies when else they would have brought but chaos. Thus by the time of the sack of Rome, "freezing intellect, fiery emotion, and melting mysticism"—rationalist Arians, tumultuous Montanists, ecstatic Neoplatonists, and their followers—had alike to be coped with by the historically Catholic Church. The removal of Constantine from Italy to the East caused seeds of future schism to flow together. In the dispute between East and West, theology counted for but little, political ambition and the ancient reciprocal contempt of effeminate Greek and boorish Roman, for almost everything—add, the difficulty of translating Greek terms into Latin. Yet from Clement through Victor to the Popes who dominated those great Councils that set firm boundaries for Christian thought, the unique place and function of the Bishop of Rome affirmed itself, and it was long before the definite break came.

In the chaos of barbarian invasions, social and intellectual centres were the Benedictine monasteries, the cathedral schools, and the See of Rome. Benedict in the West, Basil in the East, had organised the monastic tendency according to temperaments: no firmer bond of unity, no more stabilising force could be imagined. So soon as possible, from these centres rose the Latin Renaissance, long anticipating the Greek one. It was so powerful that despite the appalling social conflicts of those centuries which we quite refuse to call "dark," the best of the old kept filtering into and vivifying the new. By Abælard, in fact, intellectual energy had become rationalist, and the sacramental theology of the period almost ran riot into fantastic symbolism. But the thirteenth century dawned, and with it the most astounding explosion of creative religious genius, operating in all fields without, we think, exception: social (guilds, etc.: hospitals; asylums); intellectual (universities and Aristotelianism "baptised"; art of all sorts); applied science (surgery); pure religion (Francis of Assisi and Dominic); philosophy and theology (Bonaventure and Aquinas). The theory, however, of the "dual control," Pope and Emperor, could not withstand developed nationalisms.

When upon this came Greek Renaissance (*cf.* p. 7) and Reformation German and French (the English political one contributed nothing original), the world fell into Catholic and Protestant, and since separate books are to be written upon this, we need go no further. Enough to say here that Christianity is seen to collect and co-ordinate the elements of other historical religions which made for their endurance: in its universal sweep it includes all possibilities. It proclaims that monotheism which by its invasions, or approximations, alone, in history, sent religions on an upward grade; while its doctrine of the absolute spirituality, eternity, immutability, infinity of God, of His all-perfection, save it from all illegitimate anthropomorphism whatsoever. Its doctrine of the Incarnation brings God so close as possible to man without sullying His purity; and it deliberately turns the full force of reason upon these doctrines as upon all the rest of its gifts. It thus, moreover, does away with all dualistic notion of matter as evil, albeit its assertion of the freedom of will admits the possibility, even as its observation and experience admit the fact, of sin. Its doctrine of the Atonement, by way of incorporation with Christ, living, dying, risen, mates Justice with that Love which none else so fully recognises in God Himself. Its social and sacramental systems cater fully for humanity, which is not mere soul, nor individualist: its authoritative element responds no less to needs proper to humanity, emphatically not self-sufficient, materially or intellectually or morally; its very ritual recognises that man creates ritual, in his life, when he does not find it. Even, since humanity has thriven on books, it provides a Book, or collection of writings, albeit these are not its source. Above all, its doctrine of supernatural Grace, without an understanding of which no part of historical Christianity even begins to be intelligible, and its transcendent mysteries, taught to an intellect always tending to assert that it is ultimate in the line of " knowing," carry a man from the never-denied bodily and mental level, not only to the perfection of these according to their nature, but still higher towards supernatural bliss in God, yet without danger of monisms, pantheist, or other. Hence, disciplined asceticism: hence, governed mysticism. Christianity therefore reckons with art, emotion, science, philosophy, social life, theology, mysticism, and co-ordinates these, and, historically, is alone among religions in so doing. Personally, we dare not omit to recall that even so, the focus of the Christian is Christ.

ISLAM

The background of Mohammedanism is complicated but easily analysed. In Arabia pagan belief and cult expressed itself in innumerable local divinities worshipped "in" or at blocks of stone, or stumps of wood, near a tree (for votive offerings) and a spring (for ritual purposes). Around these was an enclosure full of sacred animals. Worship included sacrifice and processions going (usually seven times) round the sanctuary, but, above all, the feast held at (probably) the autumn equinox near Mecca. Three months' religious peace was observed, during which fairs were also held—at these marketing took place, proclamations, recitations; wars were prepared; and, since Mecca thus became a religious centre for all Arabia, belief in a common god, in fact, monotheism, was suggested. Every kind of demonology coexisted with worship of the gods. But in the south religion was higher, and monotheism is certain for the end of the fourth century. Prayer, a sense and confession of sin, and fasting prevailed there; temples and images existed, and a clearer notion of survival. Jewish colonies were powerful, especially in Medina and not far from Mecca: in 520 a Jew was king of Saba, in the south. Byzantium and Persia, northwards and eastwards; Syrian merchants, and hermits even in Central Arabia; and convert Abyssinians in the south, had infused many Christian notions of varying worth: and Hanifs from Mecca, Medina, and Taif, seeking for "the pure religion of Abraham," accepted Jewish and Christian notions, were rigid monotheists, believers in a future life with eternal sanctions, ascetics, and total abstainers from alcohol. With at least two of these Mohammed was in close contact.

Mohammed, born about 520 in Mecca, rescued from orphaned poverty by his uncle, the head of the clan, learnt much in his work as caravan-servant, going thus to Syria and South Arabia. Marriage with a rich widow gave him time for meditation, and at about forty he had his first revelation, that God was one, and that Mohammed was His prophet. He believed, too, in a future life and in the duties of alms and prayer. Denouncing his idolatrous fellow-townsmen, he and his followers were fiercely persecuted and evicted from their clans, an excommunication of fatal import for an Arabian. They expatriated themselves (615) to Abyssinia, returned, and preached their faith at the Mecca pilgrimage. The Medina pilgrims easily assimilated the new preaching (which, in fact, contained nothing new save the personal position of Mohammed), and invited the prophet and his companions to Medina, whither they went in 622, the "second Hegira" or emigration, whence the Mohammedan calendar is reckoned. At Medina he learned more from Christian and Jewish sources, set one party against another so as better to unite them under himself, and finally created a religious brotherhood that transcended tribal unity. Revelation informed him that the heathen temple at Mecca was the first temple ever built to God, founded by Abraham and Ishmael, ancestors of the Arab race. This, then, he made his centre, uniting what looked and was so disparate, foreseeing Arabia wholly beneath his religious and civil sway, and preaching thenceforward the Holy War. Wars, in fact, followed to such effect that by 632, when he died at Medina, Arabia was practically his, though amid his plans for subduing Greeks and Persians he made no arrangements for the future of his movement.

The religion of Islam (resignation) is drawn from the Al-Koran—now the collection of Mohammed's revelations made posthumously, and the Hadith, containing the sayings of Mohammed himself—(the Koran is *God's* word), and the Sunna, or traditions of customs, partly

Jewish or Christian, partly invented as need required. By the ninth century they had to be much expurgated. Orthodox Mohammedans call themselves, hence, *Sunni*. Islam is based on four "pillars"—Faith ("There is no God but Allah, and Mohammed is His Prophet"—this profession of faith has to be made publicly by each Mohammedan at least once: it binds to the whole law: apostasy means death): Prayer (each Mahommedan must pray five times daily: he is "called" to prayer; prefaces it with ablution—in the desert, sand is symbolically used for water; turns towards Mecca—when Mohammed broke with the Jews and the Christians, Mecca was substituted for Jerusalem; takes various ritual postures and recites, at least mentally, due formulas. Mosques must have a minaret [for the Call to be given], a mihrab or Mecca-wards niche, and a pulpit for the Friday sermon); Alms (the word for this means "purification," which shows that the duty was not at first purely social, though inspired partly by the prevalent injustices at Mecca. Later, alms were to be private and official—the latter being sheer taxes assessed according to property, and applied to the community and especially war): Fasting (first, one day only a year, apparently derived from the Jewish Day of Atonement; then for a whole month, Ramadan, derived from the Eastern Lent, when Christians fasted for thirty-six days till after sunset. During that month, from before dawn to sunset, neither food nor drink nor perfume nor tobacco may be taken—the very saliva must not be swallowed deliberately): and Pilgrimage. Each Moslem who can, must make the Hajj, or Mecca-pilgrimage, once. It would be impossible here to give the details of the great festival, with its pelting of the devil, its slaughter of victims, its sevenfold procession round the Kaaba, or Holy House, with its black aerolite embedded in the eastern corner; the drinking of the bitter Zamzam well, the race between two hills, once sanctuaries. Mohammedan-Hebrew legends give reasons for each ceremony. Mohammedans can also be ordered by legitimate authority to take part in war. At Medina they were commanded to "slay the unbeliever wherever they found him," and o "make neighbouring nations feel their strength." It nust be firmly asserted that not religious zeal for conersion, but will to propagate empire, originated these vars. Indeed, it fostered hate, and turned cruelty into a irtue, and implied no martyrdom, since if faced by the ption of death or apostasy, the Mohammedan was dvised by the Koran to deny with the lips but to believe n heart. Details like abstinence from alcohol, swine's lesh, pictures of the human form, and so forth, need not letain us: as to women, the limitation of the number of egal wives to four improved their position, though livorce was easy (on the husband's side: the wife had o such rights, and could be starved to death for infilelity attested by four witnesses), and while female slaves vere at the disposal of their masters, their children could e given a regular status. Mohammed by special revelaion was dispensed from thus limiting the number of his vives and from marrying outside fixed kinship degrees lone.

Mohammed changed considerably within his own logmas. At first, God, Almighty and *therefore* One, was ' limited " by the " Throne," which created the world, nd the " Book," according to which He acts (Talmudic otions). Later, God is thought of as more merciful, yet s creating many men and spirits entirely for hell—those, .g., whom Mohammed found intractable. Also, He beomes more spiritual: the Book becomes His Will: His Throne is heaven and earth: the " Trinity," practically dmitted at first, is rejected and the Holy Spirit defined s the angel Gabriel. Mohammed's fiery angels (Mazlean in origin, p. 32) are good, and immortal. One, blis (diabolus), refused homage to Adam, was evicted rom Paradise, and spends his time till the Judgment rying to pervert mankind. Heathen deities and Arabic inn (malicious spirits of whom, however, Mohammed ound some to be good and to accept the Koran) form he companions of Iblis. They seek to scale heaven, and re pelted down with stars by sentinel angels. Hence neteors: the explanation was useful as discrediting divintion: the identification of heathen gods with the satellites of Satan discredited them in their turn. Man, tending to evil, cannot work out his salvation alone. Hence divine messengers. Among these were Hebrew patriarchs and kings, but first among them was Jesus, born of an immaculate virgin, and worthy of every attribute save godhead. Another man was substituted for him at the crucifixion, and he is throned in heaven on attesting that he never did claim divine prerogatives. Anything to conflict with this in the Scriptures (often praised by Mohammed as descendants of the Divine archetypal Book) is due to misinterpretation by Jews or Christians, and must be corrected by the Koran. After death, souls sleep till an appalling Judgment Day awakes them; then the wicked go to a hell, and the good to a heaven, described by Mohammed in terms of extreme sensuality which he never hints is to be taken allegorically. Indeed, he insists that the celestial wine gives no headaches; that souls are dressed in green satin; and he dwells on the physical charms of both youths and maidens who feed the blessed on dates, grapes, or bananas, as they please.

After Mohammed's death an orthodox party maintained that whoever won the approbation of the Islamic world was rightful ruler of Islam. Hence the Sultan. Another party accepted only the pious and freely elected governor. The Shiahs, or sectaries, decided wholly for the descendants of Mohammed's daughter Fatima and her husband Ali. One of these, the Imam Mahdi, was to appear at the end of time: whence all manner of claimants and sects. Mohammed's disconnected dogmas and the intrinsic contradictions of the Koran demanded rationalistic treatment. The Motazelites (seceders) inaugurated this about 750, but not till the eleventh century did Al-Ghazali establish the full Mohammedan Aquinas-like synthesis. In spite of Mohammed's own confession, he had to admit the popular view of the prophet's sinlessness and infallibility from birth onwards: he had, till reaction triumphed, to deny the Motazelite attack on the uncreated nature of the Koran. An absolute worship of the very letters of the Koran was thus re-established, though it afterwards faded. Al-Ghazali restored the popular predestinationism, so that Fate, as we say, anyhow that antecedent absolute will of God that provokes the cry of "Kismet," came to rule Mohammedan imagination and caused much inertia in the faithful. Three doctrines, not in the Koran, won universal acceptance in varying degrees. Mohammedan saints and their tombs obtained a cultus, though an eighteenth-century sect of "Puritans"—the Wahhabis—inaugurated a violent and destructive reform. The coming of a Messiah was felt more and more to be certain; even divinity was held to be incarnate in the descendants of Ali, though this view was unorthodox. Above all, Sufism—*sufa* is a rough cloak—had a profound influence. The Sufis were the monks and ascetics of Islam, though Mohammed had said that war was to be its monasticism. Sufism became penetrated with Neoplatonism (p. 54) and Indian Pantheism, Vedic or Buddhist (p. 19), and led, on the one hand, to a mystical endeavour after union with God, and, on the other, to dervish excesses. At its best it has produced some of the world's sublimest poetry. Since the downfall of the Sultan it seems to an onlooker that Islam is tending to "modernism," where its adherents are not abandoning it for positivism or rationalism; its war-cry serves well for political purposes: it may be asked how far its many converts absorb that passion for prayer, based on an incredibly vivid perception of the one God, interpreted by one man, which was its enormous strength.

CONCLUSION

None, then, need be surprised that students are ceasing to lay down laws for the evolution of religions, or assign the origins of religions, let alone religion, and are timorous of adding even one more to the rubbish-heap of theories, or of exhibiting the old irresponsible readiness to succumb to fascinating visions, pulling evidence into shapes that suit them, as artists adapt a landscape till it "makes a picture," or librettists a novel till it fits the cinema. Theisms, animisms, magic, these and much more coexist, cannot be put into a time-series, need not generate one another. The mind moves in astonishing spirals, and in no direct advance. Little more can be said than that all men experience the need to recognise some Ultimate and confess an obligation towards it, the power to enter into some relation to it, and the tendency to express this outwardly in "prayer" and in gifts. Man seems able to do this almost at once, by a pure and rapid jet of his intelligent, sensitive nature. What further he does depends on many things: as to the validity of his reasonings, decisions as to true and false, right and wrong, these concern philosophy, and not this book nor its topic.

BIBLIOGRAPHY

Far the best exhaustive introduction is · H. Pinard de la Boullaye, *L'Etude Comparée des Religions,* 1922, 1925.—H. B. Tylor, *Primitive Culture,* 1913.—A Lang, *Myth, Ritual, and Religion* —All W. Schmidt's works, published at Modling bei Wien.—A. Carnoy, *Les Indo-Européens,* 1921 —Guénon, *Introd. Générale aux Doctrines Hindoues* —T. W. Rhys Davids's books on Buddhism —G. Grimm, *The Doctrine of Buddha,* 1926.—De la Vallée Poussin's books.—H A. Giles, *Confucianism and its Rivals,* 1926 —W. Soothill, *The Three Religions of China,* 1924.—All the works of L Wieger —A. Lloyd, *The Creed of Half Japan,* 1911.—J H. Moulton, *Early Zoroastrianism,* 1926.—J. Lagrange, *Relig. des Perses,* 1904.—Egypt: works by Budge, Renouf, Maspero, Petrie, Brugsch —E. Naville, *Relig. of the Ancient Egyptians,* 1908. —A. Moret, *Mystères Egyptiens,* 1913 —The works of Stephen Langdon, Sayce, L. W. King.—P. Dhorme, *Relig. assyro-babylonienne.*—Morris Jastrow, jun , *Relig. of Babylon and Assyria* —J. Lagrange, *Etudes sur les religions sémitiques.*—A. Macbain, *Celtic Mythology and Relig.,* 1917 —D'A. de Jubainville, *Cycle Myth. que irlandais,* trd., 1903.—Renel, *Relig. de la Gaule,* 1906.—P. C. de la Saussaye, *Relig. of the Teutons,* 1921.—E. Kellett, *Relig. of our Northern Ancestors,* 1914.—L. R. Farnell, *Cults of the Greek States; and Outline Hist. of Gk. Relig.,* 1921.—Warde Fowler's works.—W. Halliday, *Roman Relig.,* 1923.—Boissier's works; those of G. Wissowa and of Preller; of S. Dill; of F. Cumont (Mithra).—J. Toutain, *Cultes païens de l'Emp. Romain.*—Syed Ali, *Spirit of Islam,* 1927.—D. S. Margoliouth, *Early Development of Mohammedanism,* 1926. Space forbids any real bibliography. References may be found in the above.

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS, LTD., GUILDFORD AND ESHER

BENN'S SIXPENNY LIBRARY

PLATO & ARISTOTLE

By J. A. K. THOMSON, M.A.
Professor of Classics in the University of London, King's College

LONDON: ERNEST BENN LIMITED
BOUVERIE HOUSE, FLEET ST. E.C.

First published 1928
Second impression November, 1930

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS, LTD., GUILDFORD AND ESHER

INTRODUCTORY NOTE

This volume aims at nothing more than stating in plain language what ordinary people, neither Greek scholars nor philosophers, can get from Plato and Aristotle. They must get it for themselves, the writer conceiving his business to be necessarily that of introducer only. He is the more willing to do this from a conviction that to write of Platonism and Aristotelianism in a kind of abstraction from Plato and Aristotle is as unilluminating as it is tiresome. Both were very human people and the philosophy of each is quite exceptionally " drenched in matter." The only way to understand it is to understand them.

CONTENTS

PLATO

PAGE
Introductory Note - - - - 3
Life - - - - - - 5
The Dialogue - - - - - 11
Platonism - - - - - 14

ARISTOTLE

Life - - - - - - 42
Aristotelianism - - - - 47

Bibliography - - - - - 79

PLATO AND ARISTOTLE

PLATO

LIFE

PLATO was born at Athens in the year before Christ 428-7. (The Athenian year began and ended in different months from ours.) The Peloponnesian War, which was the turning point in the history of Athens, had already been in progress some three or four years; it lasted with growing terror and suffering for another twenty-six or twenty-seven. So Plato's whole youth was spent in it. Towards its close he would be called on to do military service. He had to watch his city slowly dashing herself to pieces on the rocks. He had to live through the final agony when she was starved into surrender. He had been forced to witness what to him must have been at least as painful as the mere bitterness of defeat—the steady deterioration of the Athenian spirit. What that spirit had been is mirrored in the funeral oration of Pericles, as reported by Thucydides, the loftiest utterance of ancient eloquence. The claim there made that Athens thought more of wisdom and beauty than other cities was not the whole truth, but it was true. It is because the claim was true that we still remember Athens. The evidence is that Plato's family, one of the oldest and most distinguished in Attica, had been of Pericles' way of thinking. The lad was brought up in an atmosphere of democratic idealism, not unlike that in which Wordsworth and, later, Shelley grew up, but more intellectual and scientific. Pericles, who established the greatness of Athens, was ready to maintain—and the best of his contemporaries agreed with him—that the pursuit of knowledge for its own sake, the pursuit of truth and beauty, was, in the ugly modern phrase, sound practical politics. Plato never forgot that. His complaint in after years was that Pericles forgot it.

In the early years of the war Pericles died. His chief successor was called Cleon, a man able and disinterested, but a man of one idea. It was this which in time of war gave him his influence, for his one idea was force to the uttermost. Anyone who doubted the wisdom of this policy he branded as a defeatist. The worst of it was that he had not only the war mind, he had the class-war mind. The old, well-to-do, educated families, of which Pericles had been a member, he, no doubt honestly, felt to be traitors to the democracy and secret friends of Sparta; for anything like an effort to understand the enemy's point of view he hated instinctively. He was killed in battle, but his spirit lived. The Athenians became more and more intolerant. They would not listen to unpleasant truths. Moderate counsels were rejected as enfeebling the will to win. The old Euripides, who had spent his life teaching the power of sympathy, went off to die in Macedonia, "nearly everybody"—but not Plato, we may be sure—"feeling delighted about it." Athens flung all her ideals to the war to win it; and did not win it.

We, who stand so far away from the events, can see that the ideals themselves, though for the time defeated, did not die, and were later to inspire some of the greatest deeds of humanity. But the young Plato, immersed in the events, could not foresee that. His writings, dramatic as they are and never necessarily expressing his own opinion on any matter, are full of the emotion of this time. It is, when one comes to think of it, remarkable that a philosophical writer should continue till the end of his life to project his discussions into a past which was as different from his present as we are from the Victorians. Incidentally, it paved the way for the historical novel, but we need not go into that. There was plenty of good reasons why Plato should put the real or imaginary dates of his Dialogues where he did; one great reason being that Socrates is normally their hero. But the preoccupation with Socrates and the problems of that earlier time is obvious. Equally obvious is the strong feeling that democracy had failed. Even Pericles is assailed. He and the other leaders of the people, he makes Socrates say in the *Gorgias,* "have filled the city with docks and harbours and walls and tributes and such trash, but not with temperance and justice." That is no doubt a one-sided indictment, but it shows what had been expected of Athens and her statesmen. The expectation had been shattered. There is no use now in calling it too highly pitched; the loftier it was, the heavier the fall.

At some time in his early life—we are not told when, but it is quite likely to have been in his boyhood—Plato met the most singular man in Athens. Socrates appears to have been an old friend of the family and, if so, he would certainly not overlook a lad like Plato. On the other hand, no one ever met Socrates for five minutes who did not remember him till the end of his life. You could not help noticing Socrates—a short, stiff-legged, stocky figure topped by a head of fascinating ugliness, whose chief features were a bald, bulging forehead, a snub nose and protruding eyes. There was evidently magic in the eyes, they held people so; and he increased their effect by looking at you from beneath his eyebrows in a humorous, quizzical way. But the true fascination of Socrates lay in the contrast between the Silenus-like exterior of the man and the pure and daring soul that shone through it. He was, of course, immensely intellectual and the most effective of controversialists, but to this he added a quality which his contemporaries called irony. He might be called a saint with a sense of humour, if one remembers that he was a Greek saint and believed that the Kingdom of Heaven comes by thinking rightly more than by feeling strongly. Whatever may be thought of his importance as a philosopher—he left no book behind him and it is hard to know exactly what he taught—Socrates has impressed his personality on the world more perhaps than any other man in history. No other character seems quite so vivid and original. He owes this chiefly, though not entirely, to Plato. That was his good fortune, but it was also the good fortune of Plato to fall in with such a man.

Socrates was put to death by the Athenian democracy. That was due to a tragic misunderstanding more than to anything else; but the thing was done. A little before, Plato's family had involved itself in anti-democratic intrigues and had been decimated by the public executioner. There are some who write as if philosophers were influenced only by other philosophers. This is excessively not the case, and we need not pretend that Plato was not shaken out of all equanimity by the death of his relatives. Yet very likely the death of Socrates shook him more. For the old man had never cherished any political ambitions. His life had been dedicated to the things of the mind, and now because he had told the politicians to their faces what he thought of them the politicians had murdered him. Plato's intention, we are told, had been to enter politics. Well, here was what happened to the good man in politics. He never forgot that lesson. To the end of his long life, as one can see from his writings, it was never far from his thoughts.

No doubt he would have been a philosopher whatever happened. But if his hopes had matured, he would not have been a philosopher merely. For long this was too much forgotten. He was made the type of all thinkers who concern themselves with the supramundane, with Utopias and what people vaguely call "ideals." Though there is much truth in it, yet this view is, on the whole, extremely misleading. Plato is in many ways the most practical of all philosophers. He is always prepared to work out to its least detail a working model of his principles. His longest Dialogue, the *Laws*, is the complete draft of a constitution, indeed of a whole political, social, and educational system in full working order. The *Republic* describes the state as it ought to be rather than as it can be on earth; yet Plato would have us understand that with sufficient goodwill such a state might be realised in great part here and now. It was the duty of the philosopher, he believed, to give such aid as he alone could give his fellow-countrymen in the management of their affairs. He must sometimes "go down into the cave" where the others are sitting in a twilight of shadows and half-truths, and tell them what he has seen in the clear light of reality. He must expect to be misunderstood. The man-in-the-street will never believe that anyone so unworldly can offer him any practical advice worth having. It is probable that Plato himself suffered a good deal from this kind of criticism. There is a wonderful passage in the *Theætetus* which tells how the wise man is mocked because, while his mind holds converse with the heavens, he does not see what is happening under his nose. No doubt the philosopher has his revenge afterwards when, on any question which calls for the power to distinguish the true from the false, the "practical business man" tumbles into error as ludicrously as the astronomer into wells; but meanwhile he must steel himself against ridicule and misconception.

Holding such a view, Plato could not and did not withhold his services as political adviser to any community which honestly desired them. The chief call of this nature came to him from Sicily. That island, or the Greek part of it, had been more or less unified under the strong rule of the first Dionysius, the "tyrant" of Syracuse. His heir, who was also named Dionysius, was supposed to be "interested in philosophy," and when the old despot died Plato was invited to put his theories into practice at the new court. He had been in Sicily before and had no pleasant memories of it, but he obeyed what he thought the call of duty. However, the experiment was doomed to failure from the first. It was one of Plato's deepest convictions that the art of government, as the most difficult of all arts, required the longest and hardest study on the part of the future governor. He did not think that a gift for public speaking or a talent for bargaining or a good parliamentary manner was sufficient equipment for a statesman. Young Dionysius found himself condemned to study geometry when he had hoped to get on almost at once to constitution building. He seems to have been a fairly amiable and intelligent if rather worthless young man, and it is possible to sympathise with him. But Plato could not stultify himself either. The result was that the situation got more and more strained, and Plato at last sailed home. Perhaps he had expected no better issue, but such things hurt a man all the same.

Yet it will not do to call Plato a failure in practical matters. It will not do because he founded the Academy, which, for extent and continuity of influence upon the minds of men, may claim with some show of reason to have been excelled by no other European institution except the Church of Rome. In one form or another it lasted for nine centuries, and while its influence waxed and waned at different periods it may fairly be said to have been the principal agent in forming ancient thought. Christianity owes it an incalculable debt. Upon Christian doctrine, on its philosophical side, there have been two main influences—the Platonic and the Aristotelian, and Aristotle was, after all, only a recalcitrant Platonist. The creator of such an institution was no mere dreamer. It was, in fact, the embodiment of a very definite purpose and was planned on the soundest lines. It aimed at being a school for statesmen, and its method was to train its pupils by encouraging them to pursue knowledge for its own sake. The more "useless" subjects like geometry and dialectic were studied with particular zeal. This was throwing down the gage with a vengeance. The result splendidly vindicated Plato. It was not merely that the Academy at once proceeded to achieve the most dazzling success in what is nowadays called original research, but it was taken seriously as a seminary of public men. Greek states would apply to it for plans of government or even for an Academician to come and rule them. How far these experiments were a success is another matter; politics is a funny business. The interesting thing is that they were made. It is clear that Plato understood very well what he was doing, that he could manage the business of "organising" better than anybody. It is what he always said. The philosopher, as he understands more clearly than other men the causes of things, should be able to "do" things better also.

He was eighty years old when he died, after a life as full of intellectual and spiritual experience as that of any of the sons of men. He left behind him the idea of a university, a world philosophy, and a body of literature which for power and subtlety, for delicate irony and imaginative splendour ranks him first among the prose writers of the world.

THE DIALOGUE

Plato chose to write for the public in the literary form called the Dialogue. He did not invent it, but he brought it to perfection. Aristotle tells us that it was akin to the Mime, and Aristotle ought to know, for he wrote Dialogues himself. The Mime, which might be written in prose or verse, had two invariable characteristics: it was humorous and it was "realistic." The best known example of a Mime is in verse, the *Syracusan Women*, of Theocritus, which Matthew Arnold translated. The *Syracusan Women*, however, gives far too favourable a notion of the general run of Mimes, which take a scene directly from "life," generally from low life, and render it with a Dutch fidelity. The method of representation was always dramatic or semi-dramatic. Hence the Mime is often spoken of as a form of ancient Comedy. Now, the Dialogue in Plato's hands became a thing above not merely the capacity but almost the imagination of the old Mime writer, but it is for all that the Mime transfigured. The coarseness has naturally disappeared, but the satire, the realism, the dramatic method remain. This is not a point of merely literary interest, but one which, if misunderstood or disregarded, leads the student of Plato's philosophy into serious and sometimes comic mistakes.

Then there is the still more interesting matter of the Platonic irony. Ancient Comedy normally represented a contest between what was called an *Eiron* and what was called an *Alazon*. The second type was the pretentious man, the humbug, the impostor; the first was the plain man who, with quiet and somewhat sly humour, drew the impostor out and finally exposed him. From *Eiron* comes our word irony. Now, the old Attic Comedy loved to deal in personalities, particularly, of course, when it came to naming the impostor. With joy it seized upon Socrates. Everybody knew him, he was funny to look at, and he would serve delightfully as a specimen of the intellectual humbug, the "high-brow." No particular harm was meant. It was the fun of the fair and the victim was supposed to laugh with the rest. There is every probability and some doubtful evidence that Socrates did laugh with the rest. But to see what it was that Plato did one must never forget that it was not he, but the writers of Comedy, particularly the great Aristophanes, in his *Clouds*, who first brought Socrates into literature. What Plato did was to reverse his rôle. In the Dialogues, Socrates is no longer the impostor; he is the ironical man. Of course, in Plato's treatment he becomes infinitely more than the mere ironist, but irony is essential to him. He gave it the stamp of his character to such a degree that irony, as we now understand it, is pretty much what Socrates made it.

Since, therefore, the Dialogues are a form of Comedy, we must read them in that sense. We must remember that ancient Comedy cared nothing for the truth, that it delighted in raillery, and in what is commonly understood by realism. Take the last point. Realism, of course, has nothing to do with the truth as such. It is the business of the realist to be lifelike, and to argue that certain details in the Dialogues must be historical because they are so "convincing" is as simple-minded as believing *Robinson Crusoe.* Not that the Dialogues are fiction, except in so far as they resemble the historical novel. They deal with actual people, whose sayings and doings they report with reasonable fidelity; that is, with the fidelity reasonable in a very great literary and dramatic artist who was aiming at a very different kind of truth from that which is the aim of the historian. Plato himself, in one of his letters, no doubt authentic, says that the Socrates of his Dialogues is Socrates rejuvenated—"made young and beautiful"—that is, Socrates idealised, Socrates dramatised. This does not mean Socrates falsified and misrepresented; on the contrary, Plato no doubt believed, and believed rightly, that the picture he gave of his hero was essentially truer than would be a literal record of what he did and said, just as an imaginative portrait of a man gives a truer impression of him than his photograph. One would not like to swear to the truth of any particular detail in Plato's portraiture of Socrates, but one could swear to the truth of the picture as a whole.

Attempts have been made to discriminate in the Dialogues between the teaching of Socrates and the teaching of Plato. In the interests of the history of thought perhaps such efforts have to be made; they will certainly continue to be made. They must continue to be very doubtful and illusory. To think of Socrates in the Dialogues as the mere mouthpiece of Plato is, in the opinion of the present writer, certainly wrong, for it is to misconceive the nature of Plato's art. That art, we have seen, is of the dramatic order. The business of the dramatist is, as Aristotle would put it, to say not what Socrates did and said, but the sort of things Socrates would do and say. He will, of course, use such actual deeds and words as were specially characteristic of his hero, but for the rest he will invent a great deal of which all that you can say is that it is " in character." And we cannot at this date tell, although we may sometimes feel tolerably sure, where fact begins and invention ends. Even so, we must remember the unconscious bias of the writer, for even the facts are the facts as Plato sees them. The facts as Xenophon, another witness, saw them produce on us a widely different impression. It has been necessary to dwell a little on this point because Plato has been a good deal the victim of people for whom the processes of the creative imagination mean very little, who think of him merely as a philosopher with a style. Such people instinctively think of his art as irrelevant to his philosophy. But, in the Dialogues at least, you cannot separate the one from the other.

PLATONISM

To expound in detail the philosophy of the Dialogues is quite beyond the scope and purpose of this book. The most that can be done is to suggest to the reader who is not too clever for the writer how he may most profitably begin the study of Plato. That is why so much space has been devoted to mere introductory matter. The truth is that without this introduction Plato must remain a puzzle. If you try to find a "system" in him, you will only come on contradictions; but if you remember that he is, in his way, a dramatist for whom the conclusion is often less important than the argument, you will not go far wrong. At the same time the Dialogues are anything but a jumble of conflicting views. All views are considered, and no doubt, as he grew older, Plato himself gave up or altered some of his own. But, if one may put it so, he was always a Platonist. Every Dialogue, even the earliest and slightest, helps to build up our understanding of that most wonderful thing, the mind of Plato. While, therefore, we cannot put down in black and white what were his final views on any of the great questions of science and philosophy—he himself warns us against that—we can say perfectly well what his general attitude was to each of them.

One may as well begin with the theory of Ideas, which has made so great a noise in the world. It has been regarded as the very basis of the Platonic philosophy, and in making Socrates expound it in the Dialogues, it was thought that their author was employing a dramatic fiction. More recently it has been argued that some doctrine of Ideas was, in fact, held by the historical Socrates, and that Plato himself came to regard it as inadequate or even wrong. Whether this be so or not, Plato is never more Platonic than when he is discussing Ideas. The word is misleading to the uninformed, since it has nothing to do with ideas in the modern sense. But no substitute is quite satisfactory, and "the Ideas of Plato" is a phrase with so long and famous a history that we may as well stick to it now.

Greek philosophy had begun in an effort to answer the question: What is the world made of? It is the sort of question a child asks, and it had been asked no doubt as soon as men began to reflect at all. The genius of the Greeks came out in the sort of answer they gave it. Other peoples were satisfied to say, "God made the world out of nothing" or "It is made out of the body of a giant," or something like that. The Greeks saw that this was not an answer at all, but merely the substitution of one problem for another. It was explaining the natural by means of the supernatural, and science must not do that. Accordingly, these first philosophers argued that all things were ultimately made of one substance, such as water or air or fire. We now know, of course, that water and air and fire are themselves capable of further analysis, but we know it because the Greeks set us on the track of finding it out. In fact, physical science, and in a manner all science, is still trying to answer the old question in the Greek spirit. The Greeks themselves quickly became dissatisfied with their first simple answers, and thought out better ones. Meanwhile, another problem became more and more urgent, "How far can we trust our senses?" The world seems a very real thing to our senses; yet what is it, in the world, that is real? Is it the impression of the moment? But that is gone as soon as it has been felt, and the impression of the next moment may be, nay, must be, different from its predecessor. Yet, surely, what is real must be real always, it cannot change from moment to moment. It looks, therefore, as if the senses can give us no information about reality at all. That, extremely simplified, was the problem which confronted Plato.

The theory of Ideas may have been suggested by geometry, the first and favourite science of the Greeks. Take, for instance, the circle. Nobody ever saw a perfect circle; you cannot with all your care and the best compasses describe one. Nevertheless, the geometer can prove certain things to be true, to be true always and everywhere, of the perfect circle. When he uses a pair of compasses it is merely to draw something which will "remind" him of "the circle itself," something which will be an "image" or "copy" of that. The difficulty, it will be seen, is to find language to express the relation between the perfect circle and what the geometer draws; there is no difficulty in seeing that the difference is there. That difference is vital, because what the geometer proves is true of the perfect circle only, and not of the round figure he draws, which cannot, in the nature of things, be perfectly or "ideally" round. The figure he draws is merely an illustration. He is not really arguing about *it* at all, but about the Idea of the circle, the "circle itself," or "just circle." Or, again, if a master is teaching a boy that the sum of the internal angles of the triangle is equal to the sum of two right angles, he may begin by telling the boy to draw a triangle on the blackboard. If the boy should ask, "What kind of triangle?" the master will say: "Any kind of triangle." For what he is going to prove is true of "the triangle," not only of the equilateral or isosceles or scalene triangle—and not at all of the chalk figure which the boy proceeds to draw. That may be rubbed out and another triangle of quite a different shape described, which will do just as well.

Of course, while you may not call any triangle you draw "*the* triangle," there is something about it which enables one to call it *a* triangle and be understood. Now, it is this something which, according to the theory of Ideas, gives the particular triangle any reality it possesses; without this something it is an unintelligible smear of chalk. This implies that it is only the intelligible that is, in the philosophical sense, real; the rest of existence is merely "phenomenal"—that is, merely appears to the senses to be real. In this life we are dependent upon our senses for information about the external world, and they can present us only with phenomena or appearances. But besides the senses we have a faculty (which we may roughly identify with the reason) enabling us to reach true conclusions about the realities of which the phenomena are appearances. It is these realities which are the Ideas. Observe that the theory does not deny all reality to the phenomenal world. On the contrary, it insists that this world is real up to a point—that is, so far as the Ideas "are present to" it or it "participates in" or "imitates" the Ideas. But the theory denies reality to phenomena in any other sense than this.

It is easy to see difficulties in such a view of the world we live in, and Plato was perfectly well aware of them himself. It is not hard to grasp the notion of triangularity as distinct from any figure we may draw or the notion of goodness as distinct from any particular good thing. We may, therefore, talk intelligibly about the Idea of a triangle or the Idea of the good. But what is the Idea of a rose or a horse or a man? This is not the place for attacking or defending the theory, but for indicating its importance and its interest. And what can be more important or more interesting to the thinking man than this doctrine that behind the world we see and touch is another world, more true, more real, more good and beautiful, which with the eye of reason we may behold dimly and by glimpses on earth, but in heaven shall see in all its glory? It is to Plato men owe the first reasoned statement of that vision and that hope.

What, then, is knowledge? The impressions which the senses give us are of things which never *are*, but are always *becoming;* and such impressions are not knowledge. Does it come, then, by thinking? If we say "yes," we shall be asked: "How do you know your thoughts are true?" We must, therefore, have some criterion of truth which is independent of the senses and independent of mere thinking, for certainly we may, and do, think wrongly as well as rightly. Plato discusses this very difficult question, discusses it in the dramatic manner of the Dialogue, letting his mind play on the subject now from this side and now from that. In the *Meno* appears the famous suggestion that knowledge comes by a process of remembering the truths we knew before we were born. If we believe that the soul of a man is immortal, we must believe (the argument runs) that it existed *before* it entered his body, just as it will exist after his death. In that world, not of the senses, in which the soul dwelt before the man was born it contemplated all truth and all reality. But in the dim prison of the body it forgets what it knew, and has to be reminded. This process of being reminded is what we call learning. Something starts the process, gives us (as we say) a hint, which we follow up in thought. This is where the senses help—they start us thinking. We see a circle drawn on a blackboard, and by thinking about it we arrive at certain conclusions about the properties of "the circle" which are true conclusions because the properties are eternal and immutable. We have never in this life seen "the circle"; we must, therefore, have seen it elsewhere. But without the aid of the blackboard figure we should never have been reminded of the heavenly circle. Hence, knowledge is attained not by thinking alone, nor by the senses alone, but by their co-operation. In a later Dialogue, the *Theætetus,* Plato goes over the whole question carefully without making use or even mention of the Ideas or the theory that learning is a process of being reminded; a theory often called the doctrine of Reminiscence. He starts from the opinion of Protagoras that knowledge is relative—that what I know is true for me, whatever it may be for you—and suggests that he may have meant that knowledge is "true opinion accompanied by *logos,*" but what exactly *logos* here implies, he does not say. He is not bound to say; he is writing a Dialogue.

Another way of looking at the matter may be found in the *Republic*. There the existence of the Ideas is taken very much for granted; what is more, they are regarded as forming a graduated or ordered system; they are not all on an equal footing. At the head of this hierarchy is the Idea of the Good, which, though not itself reality and being, gives reality and being to everything else as the sun gives light to the world. This simile is elaborated in another, still more famous. Men are like prisoners in a cave, so fastened that they must sit facing the back of the cave, the sole illumination of which comes through its mouth. Outside, passing quite close to the cave, is a road flanked on the near side by a wall. Along the road people keep passing up and down, occasionally stopping to talk. Some are carrying things in their hands or on their heads. Beyond the road and its passengers is a great fire burning, which shines into the cave and casts upon its interior face, on which the prisoners are gazing, shadows of those moving folk, or, rather, shadows of as much of them as rises above the wall. At the same time the sound of talk enters the cave and, echoed from the cave wall, seems to come from the busy shadows moving there. What can the prisoners, who have never been out of the cave, or even allowed to turn their heads, imagine, except that the shadows are real flesh and blood?

But now let one prisoner be permitted to look behind him. He would see at once where the shadows and the sounds were coming from. Suppose he were allowed actually to leave the cave, and go up to and beyond the wall and the fire, and see the sun himself revealing everything in its true colours. At first he would be dazzled by this brightness, but in a little his eyes would get accustomed to it and he would see the world as it is. But suppose, further, that in pity for the prisoners in the cave, his fellow-men, he should go back to them and tell them what he had seen, would they not treat him as an impostor? Well, the philosopher is like the man who leaves the cave; the rest who abide there are those who will not or cannot see the truth, and who believe that the world of sense—the shadows on the wall—is real.

So understood, the great end of the philosopher is to see the sun—to contemplate the Idea of the Good. But he must gradually prepare and strengthen his eyes for this, otherwise he will be dazzled or even blinded. Plato never suggests what so many of the mystics have believed—that one has but to see the truth in order to comprehend it. Rather it might almost be called his main purpose to insist that we only comprehend the truth when we have "thought it out." There is a strictly logical method of doing this, which he calls Dialectic. It is a way of dealing with what he calls "hypotheses," but we would rather call postulates or initial assumptions. Each of the physical sciences assumes without proof the validity of certain propositions, from which all its conclusions are ultimately drawn. Arithmeticians, for example, assume as self-evident the truth of the statement that two and two makes four. Euclid assumes that a straight line may be drawn between any two points. It is the business of Dialectic to examine these assumptions and see what truth (if any) is in them. This, because Dialectic is never satisfied with any assumption, in so far as it is just assumption, is called "destroying the hypotheses." The pursuit of this method ought to bring us at last to the Idea of the Good itself, which is the source of all truth that is in the "hypotheses" or elsewhere. Thus Dialectic is the special instrument of the philosopher; but he must know science in order to use his tool.

Plato's attitude to science is very interesting. It was a thing he admired intensely and valued very highly. The Academy devoted to scientific studies an amount of time which would be thought quite disproportionate in any modern university. Even more important than that was the scientific spirit which permeated the school. Mathematics was made, as it were, the basis of the curriculum. The study of Plato in the last forty years or so has tended more and more to emphasise the scientific, more particularly the mathematical, side of Platonism. For all that, he does not believe that science by itself can lead us to the truth. It never gets beyond probabilities. It gives us an explanation of the facts before it which might account for them, but beyond that it does not go and should not pretend to go. Such a view is very like that held by more than one philosophical scientist of our day, and Plato did not in the least mean to disparage science by it. But we must remember what his view was when we read his own scientific speculations. The physical sciences in particular deal with phenomena—that is, with things as they appear to us, not as they are. We cannot, then, expect the truth from the physical sciences. It is, therefore, a great error to take anything Plato may say about the constitution or configuration of the earth and such matters—and he has much to say about them —as "gospel." Indeed, he has suffered a good deal from devotees who would take everything he says as gospel. He is not a philosopher for literal minds.

His views upon the nature of knowledge affect, of course, his views upon education, a business very near to the heart of Plato. The foundation of the Academy proves that. But his interest was not confined to the studies pursued in the Academy; it extended to elementary education and even "infant welfare." It was natural enough for Plato to found a "school" of his own, and he had before him the example of Pythagoras, who had established a brotherhood of fellow-mathematicians and co-religionists long ago. But that a philosopher should concern himself with the whole business, practical as well as theoretical, of education was something new. Yet this, too, was natural in a follower of Socrates, who held that "virtue is knowledge." Clearly, if that be true, education becomes a matter of inestimable importance. To us the doctrine of Socrates appears more paradoxical than it did to the Greeks, who were accustomed to express the problem of knowledge in the form: "How can you do a thing well unless you know how to do it?" That, at any rate, is a practical question, whether it is logically sound or not. In the spirit of it Plato wrote much of his *Republic,* which is very largely a treatise on education. Man, being a social animal, can attain his proper goodness only in a community; the nearer perfection the state in which he lives, the better chance the citizen has of attaining to perfect virtue. The first thing to do, then, is to construct the best polity we can or, as the Greeks generally put it, to enact the best laws. Then we must have someone to administer them, someone who shall be, as it were, the intelligent embodiment of the laws, which otherwise are sure to act stupidly or harshly. Thus our search for the best state becomes a search for the best statesman. Now, since statesmanship is the highest and hardest of all human activities, it is clear that our statesman ought to be specially educated for his task. The scheme of education outlined in the *Republic* has, of course, an independent value; but it may also be regarded as a device for discovering through a long series of progressively difficult tests who is the man best fitted by ability and character to rule the rest of us.

Plato does not begin by rejecting all previous systems. He is quite content, so far as elementary instruction goes, with the existing system properly worked. A young boy in Plato's time was taught "music and gymnastics." That is, he was taught to read and write and count and play the harp a little—all this was "music"—and he was put through a good deal of not very severe physical exercise. As for methods, there was much learning by heart. The boy was required to recite and, as far as you could expect of him, expound passages of literature, chiefly from Homer. The first thing which strikes an English critic of this scheme is that it appears to take no account of the training of character. That impression is hardly just. Morality was supposed to be inculcated by the lessons taught. Nor can anyone say that the Greeks were indifferent in the matter; if anything, they were rather surer than we that the end of education is to produce good citizens. Yet it is on the moral point that Plato fixes. The poets, he thinks, are not good teachers of morality. His criticism here sounds narrow-minded, but we must remember that he was combating the opposite view, which is at least equally narrow-minded. It is, perhaps, a good enough answer to those who say that it is the poet's function to give ethical instruction—and this was commonly said—to reply that it is not. Plato's own view, as we see in the *Phædrus* and elsewhere, was that the poet was merely a vessel of inspiration, which inspiration might come (in Puritan language) from the devil as readily as from God. Besides, if the theory of Ideas be accepted, the poet has less to do with the truth than almost anyone. For poetry is a kind of "imitation," and what it imitates are the objects of sense, which themselves are imitations of reality. Poetry stands, therefore, at the third remove from truth, and it is truth that we must teach our children. We dare not teach them, as the poets do, that God is capable of human passions or even of mutability. We should not even teach them poetry in which the victory of passion is described. Here, perhaps, our sympathy begins to leave Plato, but at any rate we must admit that, so far from eliminating the moral factor in education, he emphasises and—most people would say—over-emphasises it.

On the other hand, nobody was ever less likely to say: "Be good, sweet child, and let who will be clever." Truth and goodness being, in his view, ultimately one, the road to Truth, which is study, is also the road to Virtue. So the child, if he prove mentally capable, must proceed to the study of the sciences, and from them to Dialectic. In this way we shall at last discover our ablest and most virtuous men, and set them in authority over us. With luck we may find out best man of all and make him king. Then we shall have the nearest approach possible on earth to the perfect constitution, which cannot come until "philosophers"—that is, men qualified in this manner—"become kings and kings philosophers."

From the time of Aristotle it has been objected to the proposals in the *Republic* that they ask too much of human nature. Yet Plato understood human nature pretty well. What, then, was his intention? It is now generally assumed that the *Republic* is, to all intents and purposes, an Utopia. A phrase of his own appears to admit this. But it is only a passing and ruefully humorous phrase, natural enough in its place. The present writer cannot avoid the feeling that Plato believed, and believed rather passionately, that his Republic could be established, if people would only give it and him and themselves a fair chance. That, of course, was a tremendous "if," and thinking of it made him sometimes despair. But sometimes he would be hopeful too. Late in life, when most of the hope was gone, he lowered his demands upon humanity and produced in the *Laws* a scheme of government which he certainly thought might be administered upon earth. But could it?

The total body of the citizens in the Republic is divided into three classes—the Guardians, the Warriors (often classed with the Guardians), and the Artisans. The functions of these classes are fairly suggested by their names, that of the Guardians being to govern the state, that of the Warriors to fight for it, while the Artisans form the general body of the citizens. The Guardians—or Rulers, as they are often called—and the Warriors or Auxiliaries (their usual name) are specially qualified and trained bodies, comparatively few in numbers, especially, of course, the former; and as the welfare of the community reposes on them, it is on their work and training that Plato concentrates. If we forget this, we are apt to get our view of his Republic quite out of proportion and think that what applies to some applies to all.

To select our governors for nothing except their ability to govern—that is Plato's proposal. It was not because he knew little, it was because he knew so much of human nature, that he almost despaired of seeing put into practice a suggestion in itself so reasonable. In his imagined state the Guardians and Warriors are forbidden the possession of private property. Women are to be educated in exactly the same way as men, and promoted or not promoted on exactly the same considerations. The family is to be abolished for the governing classes. The sexes in these classes are to meet in rigorously guarded circumstances. The children of such unions are to be taken over by the state at birth and reared in ignorance of their parents, who likewise shall be ignorant of their children. These proposals come from a man, not ignorant, but terrified of the effects produced in politics by money and nepotism. In one of his austerer moods he might have said that "mother love" is a beautiful thing, but good government is more beautiful; and the two seem incompatible.

These exceptional, these startling innovations apply only to exceptional people, the Guardians and the Warriors. All the rest of the community, comprising the great bulk of it—workmen and employers and what we call the professional classes—are, presumably, to conduct their affairs as in any other Greek state. So the Republic as a whole cannot fairly be described as communistic or even socialistic. Communism or socialism restricted to a class would seem to be a contradiction in terms. As for the "community of women" for the Guardians, it is something quite different from promiscuity; it is rather an attempt on the part of the state to regulate the procreation of children. Such an attempt is instinctively resented by the average man, who feels it to be somehow indecent. He probably in his heart has less objection to promiscuity. Plato, on his part, is thinking of the children; he is what is now called a eugenist. Here, again, whether his proposals be feasible or not, he has raised and seriously tried to answer a question of transcendent importance.

Why should there be just three classes in the state? Because, says Socrates, the human soul is divided into three parts. These are the appetitive, the spirited, the rational part. The last is what makes a man a thinker, the second what makes him a fighter, the first what makes him what we may call the human animal. To the first corresponds the Artisan class, to the second the Warriors, to the third the Guardians. The philosopher is the man in whom reason predominates, the soldier is he in whom "high spirit," the business man he in whom "desire" prevails. "Spirit," or "high spirit" (*thumos*) ranks higher than "desire" (*epithumia*), because it has an element of reflection and reasonableness in it—it is rather like what we call "a proper spirit"—whereas "desire" consists of such impulses as hunger, thirst, the instincts of sex, and all the unregenerate greedinesses. This is wildly far from a scientific psychology, but that would not trouble Plato, who had no belief in the possibility of a scientific psychology. To him the soul of man was fundamentally as great a mystery as it was to St. Paul or St. Augustine. But the triple classification had the advantage of being, on the face of it, intelligible and, very likely, already familiar to the auditors of Socrates. That was all Plato needed for his purpose in the *Republic*. Moreover, the scheme has certain merits of its own. Although his use of the word "parts" is misleading to the unwary, Plato really means us to think of the soul as one and indivisible. But there is a condition of the soul when it is content with gratification of the bodily desires, another when it feels "righteous indignation," another when it exercises calm reflection; and it may progress from the lower to the higher. That is perfectly good psychology so far as it goes, although of course you never in practice get any of these conditions in an entirely pure form.

Experimental psychology or anything of that sort is foreign to Plato's thought. What very deeply interests him is the question of the immortality of the soul. On the day on which he died, we are told in the *Phædo,* Socrates discussed the problem and concluded that the soul was indeed immortal. In the *Apology* he seems to leave the question open. But there he is addressing a jury of average citizens, before whom it is enough for his purpose to argue that, whether the soul be immortal or not, "no evil can befall the good man in life or in death." In the *Phædo,* among very intelligent sympathisers, certain arguments are debated at full length. Their validity need not be discussed here, all the more because what we find in the *Phædo* is rather a critical account of a theory or theories of the soul current at the time than a complete statement and justification of Socrates' own faith in the matter. It was an old belief that the soul is by nature divine, and who says divine in Greek says immortal. In particular, the Orphics, a sect whose influence upon religion and philosophy has simply been overwhelming, held that each man's soul was a fallen god imprisoned for a season in the perishable body. That doctrine fascinates Plato and inspires some of his grandest writing, especially in those famous myths in which he imagines the fortunes of that immortal part of us when it leaves the mortal. What most appealed to him was the idea, essential to the general doctrine, that the life-imprisoned soul must purge by means of pure living and thinking in this life the sins it committed in earlier existences, so that when after death it returns to its native clime, it may pass into eternal blessedness. With such a belief mortal life becomes merely an opportunity of fitting oneself for life immortal. Such a fitting or preparation of the soul is exactly what Plato hoped to give by his teaching, although, of course, he prepared it for this life also. He cannot be charged, like the Orphics, with "other-worldliness"; yet one understands that the central doctrine of the soul's divinity was sure to haunt and at last convince him. The argument which did convince him is mentioned in the *Phædrus* and developed in the *Laws*. The soul is immortal because the soul is the only kind of motion which moves itself. All other kinds are movements of bodies—movements which must be started by soul. From this it follows that soul is prior to body.

This conclusion, he thinks, may be used to prove the existence of God, since God is a soul. The argument here is very curious. Of all kinds of movement the most perfect is movement in a circle. Now, it is obvious to inspection that this is the kind of motion observed by the heavenly bodies. How do they come to move in this way? Left to themselves, they would move in a straight line. It follows that their circular motion was imparted to them, was imparted to them by a soul, was imparted by a good soul; and such a soul is what we mean by a god. Modern science has, of course, antiquated reasoning of that kind, but it is worth noting that Plato tried to base his reasoning on scientific grounds. His astronomy was the best he knew. The strange thing is that he should have felt so perfect a confidence in it. He really did believe that he had found in the natural world the evidence for the existence of God. So certain does this evidence appear to him that he is persuaded that, if any man professes not to see so plain a truth, it must be due to wilful or sinful blindness. Such a man ought to be prosecuted by the State, and, if he persist in his heresy, even put to death. Is there in history a more tragic piece of irony?

Historically, of course, that is intensely interesting. But Plato, if he is the unconscious founder of the Inquisition, is the conscious founder of something more important—the science of theology. True, he does not regard God as supreme in the world, for with him God is only the best soul, and souls are not the highest things in the world. There is, for instance, over and beyond God the Idea of the Good. But, apart from this question whether God is the cause of His own existence or not, He is conceived by Plato in a way familiar to the modern theologian. That is one of the most significant steps in the record of human thought. Before Plato or Socrates the Greeks had tended to think of the gods as supernormal beings, the question of whose goodness was somewhat academic; while earlier philosophers had for the most part quietly left them out of their speculations altogether. On the other hand, Hebrew and non-Hellenic thought generally was unscientific. It was left to Plato to suggest and partly to develop the implications logically involved in the thesis that God exists and is good. Christian theology in particular can be traced back, through Aristotle, to Plato.

It was always said of Socrates that his chief interest was in morals. Plato shared this interest of his master to the full. It was not restricted, as perhaps that of Socrates was, to human virtue, but included the stars, which Plato regarded as much more divine and important members of the universe than man. It would also be easy to make out a case for the view that Plato was chiefly driven by an intellectual passion for the truth. But the fact is that his passion for the truth is at bottom the same thing as his ethical fervour, since for him the true is the good.

What is important for us to remember is that to

Plato, as to the Greeks in general, goodness appears in a somewhat different light from that in which we see it. He did not normally think of it as a natural gift or grace of disposition, but as something attained and maintained by knowledge. It is wrong, however, to call him an intellectualist. His point—and this he got from Socrates—is that to know the good is to do it, provided, of course, that you really know it and so make it your own and are not hampered by some physical obstacle or some morbidity or illusion of the mind. That is why there is so little discussion of the will in Plato. For him to know the good and to will and to do it were in the healthy moral agent a single act, which you might of course analyse into these or more aspects, but which you could not understand if you studied each aspect by itself. Such a view exposes itself to criticism, but it would clearly be absurd to call it intellectualism. The rather common modern notion that to explain a thing is to explain it away did not afflict the ancient Greeks.

On the general point nothing will help the ordinary student of Plato's philosophy more than keeping steadily in mind its organic unity. When a Dialogue has for its subject the nature of knowledge or of goodness, we ought to read it in the light of the whole Platonic doctrine. No doubt it would be hard to say at any particular time what the whole Platonic doctrine was, for the doctrine itself kept developing and, besides, is stated in the form of dramatic monologue or colloquy. In general, it is clear that the earlier Dialogues are simpler, more dramatic, closer to the teaching of the historical Socrates than the later. Thus, the advance in profundity and in subtlety between the comparatively late *Theætetus* and *Philebus* and the comparatively early *Gorgias* and *Protagoras* is very great. For all that, there is something in the earliest and the slightest Dialogue, even if it be no more than a sketch of Socrates in action, which is also present in the *Laws* and the *Timæus*. This something is the Platonic way of looking at things. It is easily felt, but not so easily defined. It seems to come largely from his conviction that goodness, truth, and beauty are resolved in and yet explain and distinguish one another. Without losing their identity they blend in one flame, which, in the *Phædrus*, he has called Eros. This is the true "Platonic love," to understand which is to understand as far as possible the secret of Plato.

But, of course, the secret remains inviolate. Plato himself, the supreme master of words, could find no words in which to express it. In one of his rather sad letters he tells us so. Only in the converse of sincere and sympathetic minds, in love with truth and trained to the last degree of intellectual fineness, will come flashes and glimpses of that eternal and unchanging world behind the veil. To believe this or something like this is to be a Platonist at heart, even if one cannot follow the master in all his theories and proposals. Such a belief will always fire the minds of men. It is easy to call it mysticism; but when we call Plato a mystic, we must be sure what we mean by the name. He never claims for himself "the mystic experience," which enables the patient to say that he has reached the truth by some other process than reasoning. He could never have believed a thing to be true which could not be proved by argument; his error, if it was one, lay rather in believing that there was nothing true which could not, sooner or later, be proved to be true. On the other hand, Plato recognises more than most philosophers the difficulty of "proving" anything at all. In the physical sciences, for instance, proof in the strict meaning of the word is not, he thinks, to be looked for; it is the domain of belief or probable opinion. Accordingly, in all this vast domain, in which if anywhere most people expect to find the truth, Plato has no such expectation. Whatever one calls him, it will not do to call him uncritical. But his very strictness has this curious effect. He conceives himself at liberty to proceed through the world of physical science rather like Satan on his way to Eden, now on foot and now upon soaring pinion. It is these winged adventures of his that have chiefly brought him a reputation for mysticism. But there is a method in them.

So long as he is dealing with what scientific men call "results," Plato uses carefully precise and even technical language. The Academy was getting "results" every year, many of them of the sort called "epoch-making"; and the founder of the Academy was most certainly not unaware of the importance of having them accurately stated. As for their value and influence, these form a fascinating topic, but it belongs rather to the history of science than to our present subject. We may permit ourselves the general statement that the mathematical sciences in particular owe an incalculable debt to the Academy. Euclid's *Geometry,* in many ways the most remarkable book ever written, largely embodies both the method and the conclusions of Plato's school. The great men, such as Galileo, who revived science after the Middle Ages, tended to be Platonists. On the other hand, those whose interest is in mechanical or biological studies are disposed to look on Plato as the great historic enemy of their researches. This is undoubtedly an error; in fact, if it implies that the philosopher objected to such researches on principle. It is probably true that he diverted scientific brains to mathematics and the very difficult philosophy which he built on mathematics. Plato's defence would be that the non-mathematical sciences in his time were in too rudimentary a state to allow of any important general conclusions to be drawn from them. This was no doubt true. But students of physiology and kindred subjects complain that he not only did nothing for them, he actually imported grave error and confusion into them. The *Timæus* illustrates these points. It is an account—not, perhaps, the account Plato himself would have given—of the creation of the world, including the creation of the human body. It may be said in general that its physiology is condemned by physiologists and its mathematics admired by mathematicians. Professor Whitehead even thinks that we may have to go back to the *Timæus* for a view of the universe which will support the criticism of mathematical physics. There is real historical irony in this. For century after century the *Timæus* affected scientific theory. Even in the ages immediately following Plato, and throughout the political domination of Rome, it affected the views of astronomers, doctors, and biologists. Its influence on the medieval mind clear up to the thirteenth century was almost tyrannical. Of course, medieval thinkers made—and small blame to them—little or nothing of the mathematical physics in the *Timæus*. What fascinated them was the story of how the heavens and earth, how man's body and soul were created. It was practically the only thing of Plato's they knew, and they knew it only in a bad and imperfect Latin translation. But Plato was a name to conjure with. His own warning that he must not be taken literally was disregarded. They looked upon him as a sort of prophet, whose message was none the less verbally inspired that he spoke darkly on many matters; that is the prophet's way. The effect of their method was, of course, disastrous. It resulted in the extraordinary amalgam of fact and fancy which the Middle Ages, till about the time of Roger Bacon, accepted as "science." The reaction against the *Timæus* was violent in proportion to the effect it had produced, and readers of Plato came to look upon that Dialogue as little better than mysterious nonsense. For the general reader, unless he happen to have a turn for mathematical metaphysics, it will probably continue to be mysterious. But he will perhaps take it from the experts that it is not nonsense.

Plato, like most great writers, avoids abrupt transitions. He does not tell you, as Aristotle does, when he has finished one topic and is passing to another. Yet one easily notices the change in Plato when he leaves more or less assured "results" and embarks on speculation. He rarely does this without some hint or warning; but even in the absence of such, one feels the difference in style. His language becomes less technical and more general; it acquires fresh colour, emotion, imagination. We are no longer in any possible "scientific" world. The process culminates in many of the Dialogues in a "myth." It is possible for intelligent critics to differ about the philosophical value of the Platonic Myths; there is no difference with respect to their magnificence as literature. Only Dante has rivalled them in the combination of splendour and preciseness of imagination; in Plato, as in Dante, everything has a sort of double beauty, as it were, the beauty of poetry and the beauty of mathematics. Every detail counts twice over, as part of an artistic and part of a philosophic whole. This wonderful and almost inconceivably difficult combination is even better achieved by Plato than by Dante, over whom he has some advantage in intellectual power and the plasticity of the Greek language. As to the beauty of Greek prose in the hands of Plato (when he chooses), it is hard to speak of that without extravagance, but one really does sometimes feel that it has caught a reflection from that celestial beauty which so haunted his imagination.

The Myth, or Story—for that is all the word means in Greek—is obviously a very ancient form of literature indeed, although it is usually a long time before it gets itself written down. In early Greece it was essentially oral and traditional; there might be some history in it, or very little, or none at all. Usually it conveyed some simple moral. Sometimes the moral was the real point and occasion of the story, and then it might be called a Fable or Apologue. But in the main the office of the Story was to be the vehicle of tradition. When Herodotus came to write his book, the first true *history* in the world, he collected all the Stories he could and tried to sift out the truth in them by application of a brilliant, and in some ways remarkably modern, critical intelligence. But Herodotus was not critical enough for the intellectuals of the next generation, who, for the most part, regarded the Stories either as "lies" or as the babblings of the world's childhood. That was certainly not the view of Plato, who set a high value on tradition and who saw that the Stories were, in fact, simply uncritical history and science. This seems to be the reason why, when he came to deal with matter of an historical or scientific character yet not patient of exact demonstration, he deals with it in the form of a Story or Myth.

It is well to be clear about that, because it is quite usual to find it said that the Myths in Plato embody what he considered his deepest thought. We are told that, when strictly logical reasoning from scientific first principles can do no more, he ascends into a region whither the exact sciences cannot soar but which contains a truth transcending theirs. And it is sometimes added that Plato would probably sympathise with the view that it is the poets after all who have come nearest to expressing for us the ultimate meaning of the world. He would have disliked that suggestion extremely. Nor would it be easy to think of anything calculated to vex him more than that his admirers should look for his "secret" in the Myths. We must not even say that they are attempts to translate into dramatic and pictorial language the philosopher's vision of the Idea of the Good—that Idea which, according to the *Republic*, is the source of all goodness and reality. Plato is quite clear that the vision cannot be described at all. It bursts upon the thinker as the result and reward of an intense and protracted course of *scientific* reasoning of the strictest sort, and it bursts all at once and as a whole. Such a whole cannot be indicated in words, which can only build up a dome of many-coloured glass staining the white radiance of eternity. Here Plato speaks like the mystics; but one misses his whole point if one fails to see that to reveal the mystery is exactly what the Myths do *not* profess to do.

Their function is humbler. They give us something which is not higher, but lower, than true science. One may say "true" science, because a great deal of what passes for "science" in modern writing is just the sort of thing which Plato deals with in a Myth. He would call it, and does call it, conjecture—a very necessary process if science is to advance, but not science itself. The Head of the Academy had special opportunities to observe the inspired guessing which happens when scientific genius makes contact with fresh knowledge. But a guess remains a guess until its truth has been demonstrated. It should be a lesson to those who fancy that Plato is a high and mighty literary person, who looks down on the humble investigator of facts, to discover that he is only more rigorous in defining what "facts" are than many of the humble investigators. He is sharply aware that the sciences rest upon postulates which themselves require to be proved. Until this is done, to speak of "the facts" in geology, for instance, or physiology, is premature. The postulates of mathematics come nearest to having an absolute validity, and Plato would no doubt have accepted the view that the progress of a science may in general be measured by the degree in which it has been put on a mathematical basis. Meanwhile, it is safer not to commit ourselves to the position that we have "the facts" when, indeed, we have only "probable opinions," and a good way of insuring that is to express them in the form of a story.

This does not mean that Plato regarded the content of his Myths as unimportant. He offered them merely as what we now call "hypotheses," but he offered them seriously. And by putting them in story form he did not mean to treat his readers like children who will only take their powder in jam. The Myth is the appropriate form, he considered, for scientific guessing. In connection with this we may recall a fascinating belief of his. He thought that human civilisation had flourished and been wrecked several times during the history of man. This is quite likely to be true; indeed, the learned men who call themselves "prehistorians" more or less assume its truth. What happened, Plato suggested, was this. At every such catastrophe a few families living on the tops of lofty mountains or other safe places escaped the flood or fire which destroyed the rest. These survivors would naturally be the least civilised of their kind, but at any rate they would retain some sparks of the old wisdom, which, fostered and blown upon by their descendants, would after many generations blaze up again in full glory. In this process the preserving medium was the traditional stories, the "Greek Myths," as we call them; these and the proverbs. The primitive survivors of every cataclysm could not write, but they could remember, and their memories naturally embodied themselves in stories to their children. Thus in this childish and unconsciously garbled tradition some fragments of the truth have come down to us. That this is genuine Platonic doctrine is proved by the fact that Aristotle accepts it as a settled thing. It explains why the Myths in Plato regularly seek to account for the popular stories and traditions which have a bearing on the subject. He assumes that the stories were started by something, and for this something he looks. When he thinks he has found it, he gives us what he imagines is the truth of the whole matter; and inevitably he gives it in the form of a story himself.

The Platonic Myths are among the great achievements of literature, and criticism is not in the least likely to affect their pre-eminence on that side. One need only say that such things are not written without exquisite pains and exquisite delight for their composer. Therefore, when philosophers maintain (no doubt rightly) that Plato attached an importance to the Myths which, though considerable in its way, sank into nothing in comparison with the importance he attached to his demonstrations in mathematical metaphysics, we should be on our guard. Certainly to prove the existence of a good God is infinitely more important than to make the most beautiful work of art. The trouble is that posterity is likely to doubt your proof and to insist on admiring your art. This or something analogous is what happened to Tolstoy and Carlyle and Ruskin. Plato would have shared Ruskin's indignation because, when he told people their plain duty, they replied that he had a beautiful style. But it cannot alter the fact that the modern world has found more of what it considers the Platonic spirit in the Myths than anywhere else; and it does not follow that the modern world is wrong in this, because Plato would undoubtedly have thought it wrong.

We are now told that the true thought of the Master is to be found, if found at all, in late Dialogues like the *Timæus* and the *Laws*. The latter is a vast repository of his matured thought on matters relating, we might say, to Church and State. It completes, and to some extent supersedes, the more Utopian *Republic*. But it is just the Utopian element in the *Republic* that has fired the minds of men and made Plato seem more than the severely practical legislator of the *Laws*. A man may be greater, he certainly may be other than he himself recognises. When one reads the *Laws* and there discovers that to differ in opinion from the author on a point of theology is to be condemned for heresy, and very likely put to death; when one there discovers the slightest disobedience of a slave punished with incredible severity, one may surely be forgiven for thinking that the gain in intellectual precision, alleged to exist in the *Laws*, is hardly full compensation for the earlier mood that built an imaginary state where slaves are never thought of and the spirit of inquiry ranges free. Nor can we forget that the *Republic* is a masterpiece of literature, while the *Laws* as literature is almost bad. About Plato of all philosophers it is idle to say that we must not let our judgment be affected by his genius as a writer. Without this genius he would not be Plato. If we try to forget it, we shall never know where we are. We can never really know what his esoteric doctrine was, because he has made a point of not telling us. Those who assure us that we must not presume to say we know anything about Platonism till we understand the "indeterminate dyad," and the rest of it are rather like the ingenious persons in the days of the South Sea Bubble, who urged people to invest their money in a certain scheme, "but nobody to know what it is."

It is, of course, right that scholars should insist on what Plato himself thought of most importance. It is also true that he had a profound influence on ancient and medieval thought by means of just those parts of his writing which deal with what Sir Thomas Browne calls "the mystical mathematics of heaven." But it would be a paradox to maintain that it is the mathematician in Plato that has meant most to the world. What, then, is it that makes him, what we all feel him to be, unique among philosophers? The explanation that it was his literary genius will not carry us far. It was necessary for him to have this genius if he was to find adequate expression for his thought, but you cannot separate his power of writing from his power of thinking. Efforts to do that seem destined to lead nowhither. Historically our answer will have to be something like this. Before Socrates the higher thinking of

Greece had tended—with some protests and exceptions—to become more and more rationalistic, in one of the senses of that term :—that is to say, philosophers were disposed to think they could find a reasonable explanation for everything; and, as a natural result of such a mood, they were too readily content with their explanations, which generally brought in mechanical causes. Socrates had the profoundest kind of conviction that such explanations left out exactly what was most valuable in and to the life of man. This conviction, which we may fairly call religious, was the force that drove him; his weapon was critical analysis of the current explanations made possible by his brilliant skill in logical argument. Plato inherited both the conviction and the skill, but added a new gift—a gift of expression such as (leaving the poets out of the question) had not appeared in literature before. Thus was effected what we might venture to call a new sublimation of human thought. Argument is not only far more logical in form, more exact and subtle than it had been; but the half mystical emotion of Socrates and the great Pythagoras before him is transmuted into imaginative language of an irresistible grandeur and attractiveness. It is this fusion of thought and feeling that makes Plato what he is. To call him a mystic or a rationalist or by any other label is, therefore, to miss the centre of the target. Platonism is not a " system "; it would be nearer the essential truth to call it a confession of faith.

ARISTOTLE

LIFE

Aristotle was born in 384 B.C. at Stagira, a little town by the northern waters of Greece. It was an Ionian colony of considerable antiquity, and no doubt considerable pride in its inherited culture. But of its history we know scarcely anything. The host of Xerxes had passed that way a century before the birth of the philosopher, and must have left abiding memories of its passage. Later had come the influence of Athens in the day of her glory. Finally, almost contemporaneously with Aristotle, the semi-barbarous inhabitants of the wild Macedonian country behind Stagira were slowly hammered into a formidable military power by a succession of hard and cunning kings, who affected and perhaps acquired a certain degree of enlightenment, but were apt, on slight provocation, to reveal themselves as treacherous savages. As their might increased, these kings began to reach out their hands for the more outlying Greek cities. One of these was Stagira. Aristotle grew up under the shadow of this fear. No doubt his native town was able to make terms with its overwhelming neighbour, which were not intolerable. In particular, his father, Nicomachus, a doctor well reputed in his profession, was appointed physician to the Macedonian court. The king of the moment, Amyntas the Third, has a good name among these northern princes, but even under him the court of Pella was what it had always been, and continued to be—a den of murder, intrigue, and drunkenness. Aristotle never speaks of courts or kings without a contemptuous bitterness not at all like his usual self. It is not fanciful, it is only common sense to see that a man of refinement and intelligence must have shrunk from the Macedonian gentleman's idea of a good time and thought of the bright Athenian life as something, with all its faults, desirable by comparison. If this was a prejudice, it was one with which it is possible to sympathise.

However, when he was only seventeen, he managed to get to Athens, and stayed there, off and on, for the rest of his life. At home he had probably "gone in for science." His father was a distinguished student of medicine, and the son inherited or acquired a disposition to view things from the standpoint of the doctor or (what was much the same thing in ancient practice) the biologist. Moreover, in that part of the Greek world where Stagira lay the traditional culture was scientific. At Abdera, not so far away, had lived a very remarkable writer and thinker, Democritus. He was roughly a contemporary of Socrates, and attempted to answer much the same questions, but the answers he gave were quite different. He believed in science, and built his philosophy on the recently invented atomic theory, which his genius for aphorism popularised. Science, in fact, was an Ionian discovery, and Ionian speculation was steeped in it. Such were the influences to which the youth of Aristotle was subjected. It is likely that he never outgrew them, and that, as such early influences are wont to do, they came back with renewed force as he got older. As soon as he could he became a member of the Academy under Plato. No doubt the personal eminence of the Master was an attraction, but we must not forget that the Academy at this time was the chief centre of scientific research in the world. It was, therefore, the natural place for an able young man of scientific tastes to enter.

Once a member of the Academy, there is no doubt that he fell completely under the influence of its Head. That was quite proper and natural, whatever its consequences. These early years must have been a happy as well as a formative time for Aristotle. He could not have wished for anything better than to be one of that band of brothers, each with some touch of genius or large endowment of mind and character, arguing about all things in heaven and earth, making new discoveries every day. It was the memory of this time which helped him later to write about "friendship" with almost a religious feeling, and, when the break came with his old companions, to use the beautiful and touching phrase, "Both being dear, it would be wrong not to prefer the truth."

How did the break come about? That is not at all clear to us. For a long time Aristotle was apparently content to accept the full Platonic doctrine. We have brief notices and fragments of his writing at this period, and it seems to be pure Platonism. But doubtless even then there was some half-conscious resistance. He had a biological rather than a mathematical mind, and therefore was not naturally sympathetic with the tendency of Plato to make the study of mathematics the basis of philosophy. That study is almost the only branch of ancient knowledge in which Aristotle is not a master, and this would put him at a disadvantage with the brilliant geometers of the Academy. He may reasonably have felt that he was not doing himself justice or having justice done to him. When the question of a successor to Plato arose, Aristotle was passed over in favour of Spensippus, a man of altogether weaker abilities. But to Plato himself he remained faithful while Plato lived. Only after the Master's death in 348-7 B.C. Aristotle withdrew with Xenocrates, a fellow-student and future Head of the Academy, to the Asiatic coast of the Sea of Marmara, where Hermias, another friend and former Academician, had become ruler of Atarneus and Assos, two city states there. Hermias had a niece called Pythias, whom he had adopted as his daughter. This young lady Aristotle married, apparently for love, as he mentions her tenderly in his will long after she was dead and he had, not quite legally, wedded another woman. He stayed in Assos for three years thinking out his position, and deepening and widening his knowledge. At the end of this period he crossed the sea to the island of Lesbos, not very far away. The attraction seems to have been Theophrastus, a fellow-*student in the Academy, who was a native of Lesbos,* and living there at the time. In his new home Aristotle seems to have given particular attention to the marine fauna of the isle, and the information he collected on this subject is regarded by zoologists as of first-rate quality.

From such occupations he was called by Philip, the great king of Macedonia, to superintend or help in the education of his son, the future Alexander the Great, who was then (343-2) about thirteen years of age. This, of course, gave Aristotle a position of great influence, which he used in various kindly ways, but without, it would seem, any particular advantage to himself. What probably drew him to the court was the chance of educating so great a prince in the principles of his Master, for Aristotle was a true Platonist in believing the Politics was the chief of all practical sciences, and that the great need in Politics was to educate our rulers. The bringing together of Aristotle and Alexander as teacher and pupil looks as if it had been arranged by some higher power to test the theory. The experiment did not work very well. One may doubt if it ever got a real chance to do so. The atmosphere of the court of Pella was vastly different from that of the Academy, and Aristotle must have found it hard to breathe freely. To say nothing of the king's domestic troubles, the policy of Philip was very much that of Frederick the Great. It was not a healthy air for any kind of idealism. What flourished instead was the dream of making Macedonia a world power by military conquest. The dream, as everyone knows, was realised by Alexander, whose mind even at the age of thirteen it had probably begun to occupy. It has often been said that Aristotle did not grasp the new conception. Of course he did; the conception was, in fact, not very new, and he sometimes refers to it. He thought that, if the Greeks were to unite, they could probably conquer the Barbarians; which is what happened. But what Aristotle was interested in was civilisation. It could produce its finest flower only, he believed, in city states. The nation he regarded as a lower type of political organism. In this view he may have been right or wrong, but, holding it as he did, he was not likely to do much with Philip or even with Alexander. Soon after the death in 335-4 of the former, his real patron, he returned to Athens.

He determined to set up as an independent teacher. The place he chose for his "school" was a pleasant grove, the Lyceum, where under the trees he held discourse with his pupils, walking up and down, and so earning for his philosophy the name or nickname of Peripatetic. It is often stated that the Lyceum school was founded in opposition to the Academy; it would be just as true to say it was founded in imitation. The chief difference between the teaching of Plato and Aristotle was merely a difference of emphasis. The range of studies in the Academy appears to have been much the same as that in the Lyceum, and few minds have been more "encyclopædic" than Plato's. But we do not naturally think of Plato's mind as encyclopædic because he thought some other things of more importance than what are called "facts." To Aristotle, on the other hand, the "facts"—the conclusions we draw from observation of the physical universe—were of primary importance. He thought we could not have enough of them, and so it is natural to call his an encyclopædic mind. It is arguable that this change of emphasis makes all the difference, but it is equally true that in taking all knowledge to be his province Aristotle was a true child of the Academy.

On the death of Alexander in 323 B.C. a wave of anti-Macedonian feeling broke over Athens. In this wave Aristotle from his connection with the dead conqueror and his friendship with Antipater, the regent of Macedonia, was caught, and he found it advisable to leave the city which was his spiritual home in case he should share the fate of Socrates and Athens "sin a second time against philosophy." He withdrew to Chalcis, his mother's town, where in a year's time he died. His will has been preserved to us, and gives, what the wills of great men by no means always do, a favourable impression of the writer's consideration for others. He is said to have lisped in speech, and been something of a dandy—a bald man, with little eyes, but good features; walking on thin legs about his garden and unaffectedly laying down the law about everything.

ARISTOTELIANISM

The "Works of Aristotle" are extraordinary from every point of view: they are extraordinary for their matter, their manner, their influence. Consider first their range of subject. Aristotle treats of Logic, Rhetoric (the art of writing as well as speaking), Physics, Metaphysics, Biology, Psychology, Ethics, Politics, and many other subordinate or less extensive inquiries. Into each of them he introduced, often for the first time, system and order. There is no other man in human history who has done anything that is really comparable to this. The quality of his work is naturally unequal, but the work is there, a solid foundation on which the generations have builded. There is hardly a subject, apart from those discovered since his time, in which if you dig deep enough you will not come at last upon Aristotle.

And all this is set forth in a style, if style it can be called, which would make an angel weep. It will not do simply to call him a bad writer and leave it at that. There is a surprising number of things in Aristotle which are as well said as they were worth saying. But they are sporadic and often merely parenthetical. For the most part he reads like a professor lecturing somewhat informally to advanced students and frequently getting into trouble with his sentences. This, in fact, is pretty much the truth of the case. It looks as if some almost too pious editor or editors had published after his death all Aristotle's manuscript they could find, including repetitions and restatements of former views. For a considerable part of his life he was an orthodox Platonist and wrote as such. It is natural to expect some traces of this period lingering even in works which belong to the time of his independent teaching. These traces have been found and ought not to cause any particular trouble. What does put a strain on the reader is the Aristotelian style. He is expected to know the arguments and ideas, and to be initiated in the terminology, not merely of the Lyceum, but also of the Academy. Consequently, he sometimes feels like a man trying to decode a cipher. Yet even this is less trying than Aristotle's way of interrupting himself. What may be called the "But it may be said" habit of mind is almost an obsession with him. With all that, he has a curious fascination for any intelligent reader. He is so pregnant, so full of matter, so wise, and so human that one does not wish him different. This feeling is deepened when we discover that his best nuggets are in his hardest rock. It may console us for the loss of works written for the "general reader," such as the lost Dialogues composed in imitation of Plato. Their style was admired by Cicero, who may be allowed to know something of the matter. We have got the Constitution of *Athens* written in what may be called a semi-popular manner; it is highly important for the historian, but as literature it is a jejune affair. Not that

Aristotle cannot be " readable " when he likes; he can, and frequently is. But as a literary artist he can never have been comparable with Plato. One may safely deny that Plato even in writing a lecture not meant for publication could have perpetrated the sentences of which his pupil is only too capable.

We should be all the more grateful to Fortune that it is the technical and not the popular writings of Aristotle which have come down to us. If it had been the other way, we should never have known what Aristotelianism was or how it differed from Platonism. As it is, while the broad differences are obvious, there is a great deal in Aristotle that is clearly Platonic, not always fully assimilated to the rest of his teaching.

Thus he began by accepting the Theory of Ideas and, as part of that Theory, the belief that the Ideas exist independently of the things, the sensible things, to which they " are present " or which " participate in " them, or however one might express the relation between things and their Ideas. Aristotle came to doubt, and at last to deny completely, the existence of any reality independent of what we call things. But he remained to the end Platonic on one point, the crucial point. Though things are real, no thing is wholly real; only part of it is real; the rest is appearance. This agreement is more fundamental than the difference between the two philosophers. But the difference is vital, too. While Aristotle believed that all reality must be contained within the physical universe, Plato thought that, if once a distinction were made between the real and the unreal or less real, this involved belief in a complete world of real essences beyond or beside the world of sense. For (the argument runs) if the world of sense depends for any reality it may have upon the world of Ideas, the Ideas must be independent of the things of sense. It is not at all clear from the Dialogues that Plato (or Socrates in Plato) did believe that the Ideas in fact existed independently of phenomena. But this belief was a natural result of holding the doctrine of Ideas and (we may take it from Aristotle) a belief maintained, if not by Plato himself, by important members of the Academy.

However that may be, Aristotle preferred another way of stating the relation between the real and the unreal in things. He made a distinction between *form* and *matter*. It was one of the oldest conceptions in Greek philosophy that the world we see has been shaped into its present appearance out of some shapeless and unqualified stuff, which the Greeks called by a word translated in Latin writers by *materies,* whence our "matter." This conception Aristotle revived and filled with a new meaning. Any thing, any distinct object of sense, has, of course, a shape or form. But a form must be a form of something, and this something he calls "matter." Form cannot in ordinary conditions exist except in matter, while matter is only a possibility of becoming—whatever it will become when it has received form. Form is as necessary to matter as matter is to form. You can distinguish them in thought, but you never find them apart. Nor is there any use in looking for any reality outside things, which are always a combination of form and matter. Reality is in them or it is nowhere.

In other words, form and matter are relative terms. We should not therefore confine their use to the most elementary kind of form, whatever this may be, or the primal matter, whatever that may be. Thus in the case of a marble statue we can distinguish between the *form,* which is the shape of the statue, and its *matter,* which is marble. But marble itself is capable of analysis in the same way into the form and the matter of marble. This process we may carry as far as it will go. We reach the limit when we come to "the four elements," being earth, air, water, fire. Beyond them we cannot proceed, since they can be analysed only into hot and cold, dry and moist *plus* "prime matter," which might be called pure matter, and like pure form exists only in thought and cannot be perceived by the senses. We must, therefore, be careful when we come on the words "form" or "matter" in Aristotle to consider whether he is using them absolutely or with reference to a particular thing, such as a marble statue. In the former case, what he says applies to form and matter always; in the latter, to form and matter in a particular instance.

And he complicates the situation further by using a great deal the word *physis,* which we translate in a rather misleading way by "nature." Here is another conception which was a very old one in Greek philosophy and had played an enormous part in its development. As often happens in such cases, the conception itself had gradually changed, with the result that by Aristotle's time the word "nature" had become highly ambiguous. As he says, it was sometimes used to mean what he called "form" and sometimes to mean what he called "matter." The first usage he considered more philosophical. He does not on that account drop the other, but calmly continues to employ both. Why does Aristotle take these risks of being misunderstood? Partly because his students would understand, partly because he believed there was truth in the other usage too. Plato, it will be remembered, suggested that at the core of every genuine tradition was very likely a seed of truth which had been preserved from antediluvian times. What he offered as an hypothesis, Aristotle appears to have accepted as an historical fact. He attached high importance to all traditional lore. There must, he thought, be "something in it"; and if he found that it agreed substantially with the opinions of "wise men"—philosophers or men of exceptional ability—on any question, he did not think it necessary to go further. It only remained to express the result in terms of his own philosophy. This is why he often appears to be loose, casual, and even self-contradictory in what he says. Everything goes into his sieve, and it is very confusing. But if you wait for the result of his shaking you do at last find at the bottom a residue which is tolerably clear and solid.

In respect of this word "nature," for instance, we have only to watch in what sense he is using it. Aristotle himself makes no bones about his own laxness, and has discussed the ambiguities of the word at some length. What, he asks, do we mean when we say of certain things that they exist "by nature"? We mean, in the first place, that they do not exist by art—that they are not manufactured objects. But, secondly, we mean that there is something within them which may start them moving, whereas any impulse to movement in manufactured objects must come from without. When we speak of "nature," then, we seem to be thinking of this innate impulse to movement in certain things—in all that body of things which in English we call Nature. For Aristotle himself this may be called his grand governing idea. It is a little like the idea of a "life-force," or the *élan vital* of Bergson. Only what interests Aristotle is not so much the movement itself as the goal to which it is moving. Now, what is the goal to which everything in Nature is moving? It can only be the form of the thing when the thing has reached its completion, which is the end of its movement. Therefore, says Aristotle, a thing is most properly said to have attained its "nature" when it has fully attained its "form." From this point of view, then, "form" and "nature" may be regarded as synonymous. At the same time we must recognise the fact that by the "nature" of a thing people often mean what it is made of—in fact, its "matter." Thus they will say that wood is the "nature" of a wooden bed. But this use of the word is open to criticism, since wood itself cannot be regarded as a simple or primary substance, and we have to ask ourselves what is the "nature" of wood. We come at last to the elements, and this gives us a third use, the usage by which we call the four elements "nature." These are three more or less technical meanings of the word, but they need not deter us—at least, they do not deter Aristotle—from using it in a colloquial or literary way, as when we say that Nature does nothing in vain, or Nature abhors a vacuum.

We need not further consider any but the specially Aristotelian use of "nature" as equivalent to "form." Words which denote the same thing may have very different connotations, and this is eminently true of "nature" and "form." The suggestions of "nature," it has been said, are dynamic; the suggestions of "form" are static. When we speak of the "form" of a thing, nothing is suggested but an aspect of the completed thing; when we speak of its "nature," a new suggestion comes in, the suggestion of the *process* by which the completed thing has come to be what it is. This is why the word "nature" is so valuable to Aristotle and so characteristic of him. It helps him to express what he felt to be a cardinal difference between Plato and himself. It is the difference between the *mathematician and the biologist. It would, of course,* be an error to suppose that Plato regarded the Ideas merely as a mathematician regards his numbers and diagrams; but that was one way in which the Ideas could be approached, and the mathematician in Plato was fond of it. Aristotle, on the other hand, was dominated by the conception of process—which, it is perhaps needless to add, is not the same thing as progress. His insistence on process was certainly of priceless value, and makes him really, for all his debt to Plato, a markedly original philosopher. He lives, as it were, in the same house with Plato, but he habitually looks out of a different window and sees a different landscape.

It was this biological quality of his thinking which led him to make another of his fundamental distinctions, the distinction between the actual and the potential. If A is capable of becoming B, it is actually A but potentially B. An actual acorn is a potential oak. Is this a purely verbal distinction? Aristotle did not think so. No doubt an acorn is an acorn and an oak an oak, and neither can be anything but what it is. But, after all, an acorn and an oak have a very special relation to each other, and it is this which is expressed by saying that the former is potentially the latter. Another way of putting it is to say that you cannot really know what the acorn is until you know that it is capable of becoming an oak. In general terms the *end* explains the *process*, is, in a sense, the *cause* of the process. The actual is logically prior to the potential and is necessary to its existence. This is the same as saying that every process implies an end, which, as we saw, we may also call a "nature," and only realises itself and finds its meaning when it has attained this end or "nature."

That is why Aristotle has been called a teleologist. The description is accurate, if by a teleologist we mean a philosopher who believes that everything has an end towards which it is moving. It is not accurate if we mean something more than this. Something more is, in fact, commonly meant. There has come in the idea of a Creator who has designed a universe with a system of ends. Such an idea is quite foreign to Aristotle, for whom God is not the Creator, but simply a pure self-contemplating Intelligence. Nor must we credit him with the belief that the world is moving towards a better or a higher state. Completion is not the same thing as perfection, and all that Aristotle maintains is that we live in a system of things moving towards their completion.

We are now in a position to understand Aristotle's discussion of *causes*. The question is important because it is his view that a thing is known only through its causes. These are normally four in number: the material, the formal, the efficient, the final cause. In other words, in order to know a thing, you must know (1) its matter, (2) its form, (3) the agent which makes it what it comes to be, (4) its end. None of these causes by itself is enough to cause the thing; in ordinary conditions all four are necessary. It is at first surprising to find matter and form considered as causes. But this is only another example of the perplexities produced by a gradual change in the meaning of a word since antiquity. The Greek word which we translate " cause " meant originally " that which is responsible " for something. In this sense form and matter are clearly causes, for they are necessary conditions of anything being what it is at all. Thus (to resume our illustration of the marble statue) we can see that the matter of the statue—marble—is a cause of it, since without the marble there could be no such statue. We can also see that the form of the statue is a cause, since a formless statue is not a statue at all. Again, the sculptor is a cause; that no one would deny. But the final cause? Well, the end of the statue, its completion, obviously conditions at every step the action of the other causes. It causes them to act in the way they do. The sculptor first thinks of a statue and then makes it. Therefore, although the other causes, and conspicuously the material cause—the marble—are prior in *time,* the completion of the statue is prior in *thought.* That is why the final cause is the most important of all.

Aristotle has much to say about the interrelations of the four causes. We must be content with observing that he makes a broad distinction between the " material " and the rest. On one side is the undetermined matter, on the other the form which determines it. The undetermined is the meaningless; so that the form of a thing may be said to give it meaning, may even be said to *be* its meaning (*logos*). The form explains the thing, says " what it was to be the thing "; that is, states its essence (*ousia*). This amounts to identifying the formal with the efficient and the final causes. The form of a thing is the way it is constructed, the end of a thing is the way it ought to be constructed; but, since a thing cannot be truly said to be *constructed* unless it is constructed as it ought to be, the formal cause may be identified with the final. Again, we may say that it is the conception of the right construction of a thing in the mind (*psyche*) of its maker which causes it. This is what we call the efficient cause. The form of the thing as it is: the formal cause. The form of the thing as it should be: the final cause. The form of the thing in the mind of the agent: the efficient cause. Important distinctions, but distinctions only. These three causes are fundamentally one.

It is necessary to grasp this somewhat intricate business before we can follow Aristotle's method in science. That must be left to the student himself. But it is now, perhaps, time to say something of what is generally called Aristotle's "classification of the sciences." Here, again, we must not be misled by a word. "Science" in Greek means simply "knowledge." It is "science" if you know mathematics, if you know a good man or a good argument from a bad, if you know how to play the flute. Since Aristotle deals with the whole of knowledge, he is naturally led to divide it into fields. Some of these had been divided off before him, though rarely with any clear distinction; some naturally divide themselves off. But to see how they all lay so as to form a whole is a widely different matter. It is probable that Aristotle's scheme owes much to the full curriculum of the Academy. Still, it is, so far as we can tell, the first comprehensive effort to organise the whole of knowledge. Of course, the actual sum of ascertained facts in his time was beyond computation less than it is now. Yet the audacity of the attempt remains. As for its success, one need only say that knowledge is still, in the main, organised on Aristotle's lines. Any comment on that is clearly superfluous.

The main principle of his classification is this: Knowledge is of three sorts—theoretical, practical, productive. The theoretical sciences are those which seek only to know, the practical are those which seek to know how one ought to behave, the productive are those which seek to know how to make something useful or beautiful. Theoretical science is subdivided into Mathematics, Physics, and Metaphysics, which Aristotle calls "Theology" because the chief of the "forms" it studies is God. The practical sciences are Politics and Ethics, although, strictly speaking, Ethics is a branch of Politics. The productive are such as Rhetoric (the art of prose) and Poetic (the art of poetry). "Productive Science" is not a name that Aristotle affects, but something like it is necessary to make his scheme clear. The broad division is between theoretical and practical.

There is one of the sciences, however, which occupies a peculiar position. This is Logic. Briefly, Logic is the study of correct reasoning, and is, therefore, *properly speaking, not a science at all, but a necessary* preliminary to the study of any science. This is why the body of the Aristotelian treatises on Logic received the name of the *Organon,* or Tool, because Logic is the tool of which the student must possess himself before he sets to work upon any science. Aristotle attached the greatest importance to it, partly, perhaps, for the very human reason that systematic Logic was pretty much his own invention. Its importance has become to some extent merely historical, but this history is amazing. The mind of the great thirteenth century was nourished upon it, and to this day we argue in the technical terms of Aristotle. But the value of his Logic, even that division of it which is called Formal Logic, is very far from being exhausted. It raises questions which must always be fundamental. What is involved when we make a statement about something or somebody? What is it to "prove" a thing? Aristotle's answers are not final; but, then, neither are ours. What he did was to make the questions precise, and if he had done nothing else it would still make him remarkable.

We can hardly concern ourselves here with what he meant by his Categories. But it is obviously worth noting that his examination of statements or propositions involves what confronted our childhood as the "analysis of sentences," and so led directly to the science of grammar, which, before Aristotle, could hardly be said to exist. He is also entitled to be called the true inventor of the "syllogism," the type of the logical argument from "premisses" to a "conclusion." *All men are mortal. Socrates is a man.* Therefore *Socrates is mortal.* That is one form or "figure" of the syllogism. Aristotle was justly proud of his invention; for, indeed, what could be, in the mathematical sense, more elegant? It has been attacked on the ground that, if we know the premisses, we already know the conclusion. If we know that all men are mortal and that Socrates is a man, we have already discovered that Socrates is mortal. Why, then, does Aristotle, who knows all about "begging the question," put forward such an argument? The answer is interesting. His Logic is an attempt to systematise and generalise the only kind of strict reasoning which existed before his effort—the reasoning employed by geometers. Euclid, who inherited the method from his predecessors, is constantly proving universal truths from a single instance. From the consideration of *one* triangle he can prove that the sum of the interior angles of *all* triangles is equal to two right angles. In the same way, Aristotle would maintain, you do not need to ascertain the mortality of every single man before you can say, "All men are mortal"; you could say it without knowing Socrates at all. Again, in order to know that Socrates is mortal, you do not need to know all that is implied by mortality; it is enough to know that he has certain attributes which necessarily involve mortality.

In any case, the syllogism is something more than a bare process of inference. The conclusion is almost a secondary matter. A syllogism is the bringing together of premisses so that the obvious conclusion follows. If we are disposed to think that Aristotle attaches too much weight to a sort of verbal diagram in his method, it is only fair to remember that it is a matter of the last importance to get one's premisses correctly stated. Pedantry here is almost a virtue. Take care of the premisses and the conclusion will take care of itself.

The syllogism is a method of *deduction*—that is, of arguing from the universal to the particular. But Aristotle is also aware of *induction*, which is arguing from the particular to the universal, as when one argues from one's necessarily limited experience that all General buses are painted red. It would seem that induction is the exact opposite of deduction, and in an obvious sense that is true. But in a deeper sense induction is only a form of deduction, although a somewhat peculiar form. What happens, according to Aristotle, is this: We see a number of instances of a universal truth, and from these immediately infer that truth. A child does not need to play with many toy balloons before concluding that all toy balloons are easily burst. But is this really deduction? Only by a stretching and, perhaps, abuse of the term. All we can say is that the child, after a sufficient experience, suddenly "just knows" that all balloons are easy to burst. In this he resembles the greatest scientific genius. It is one of the marks of scientific genius to see "in a flash" that what is true of some individuals in a class is true of the whole class. Aristotle fully recognised this, and to recognise the importance of that kind of guessing which we call scientific imagination is a greater thing than giving it its right name—whatever that may be.

There is another point to be observed. It is possible for a syllogism to be correct in form and yet false in fact. Science, however, deals only with syllogisms that are true in fact. Now, how can we be certain that our premisses are not merely correctly stated but true? The natural answer is: By having first proved them true. But clearly that process cannot go on for ever. We must come at last to certain things which have nothing beyond them from which they can be inferred. And yet we must and do assume these things to be true. We assume, for instance, that, if a thing exists, it cannot at the same time not exist. We cannot prove that; but, if it is false, then we cannot get to know anything at all, or even proceed any further with our thinking. Besides such axioms, which are of universal application, there are the axioms peculiar to each science. "Two straight lines cannot enclose a space" is an axiom peculiar to geometry, or at any rate to Euclidean geometry. If you do not grant him this, Euclid can do nothing. There are also his "definitions," which you must accept before he can proceed a step. You must also, of course, accept as real objects of thought the lines and circles and triangles about which he discourses. Every science makes similar assumptions except metaphysics, which professes to make no assumptions except those which are necessary to all thinking whatever.

These axioms and primary assumptions of science, which we cannot prove, nevertheless seem truer to us than any demonstrated conclusion. How is this? Aristotle explains that it is because they are grasped by what we may call intuition—an intuitive act, that is, of the *reason*. In such an act the mind is exercising a higher faculty than that which is exercised in the discovery of scientific truth. A higher but not an alien faculty; for Aristotle does not think of the mental faculties as existing side by side in the mind of man like things in a country grocer's window. He very carefully, and in greater detail than can be fairly summarised here, traces from its rudiments in sense perception the growth of the power to grasp the universal in the particular until we can grasp those ultimate universals of each science, and, after these, the universals of all knowledge whatsoever.

Armed with this instrument of Logic, Aristotle investigates the whole learning of his time.

His work in Biology may be mentioned first because it is so characteristic. There is an interesting passage in which he defends the study of animal life against those who thought it beneath their attention. If Aristotle had been better aided in the collection of materials there is no saying what he would have done for Biology. As a matter of fact he knew only some five hundred different animals, and even about these his information is often ludicrously wrong. After that it seems preposterous to call him the greatest of biologists. Yet in historical perspective he seems to be so. The science is for all intents and purposes his creation, and the disciple, even if he be Darwin, is not greater than the master. Aristotle, as might be expected, is greatest in the theory of the subject; but he is also a first-rate observer. Of course, we do not know how far he was dependent on the observation of others, but this hardly matters, since the whole business was organised by himself. One of his methods was dissection, another the use of diagrams. The results are sometimes so brilliant that recent research has been able to add very little of importance to them, and has sometimes actually justified them against modern criticism. Where Aristotle goes wildly wrong is when he accepts "travellers' tales" about animals beyond his reach, such as the tiger—he is incredible on the tiger. But no one ought to suppose that he was as sure of the information he found in romantic history books as of the information he could personally control. He merely thought it right to put down all the evidence he could discover in case he should leave out something, which for all its apparent absurdity might turn out to be true. In this he was clearly right. It is a common and largely justified criticism of Greek science that it was too prone to speculate from incomplete evidence. Aristotle, at any rate, always collects all the evidence he can. He despises no source. Like Darwin, he was always ready to listen to the practical expert, however "uneducated." The imagination finds pleasure in the picture of Aristotle listening to Ægean fishers while, with many gestures, they explain in their island dialect the habits of crabs and cuttlefishes.

Still, this has what scientists are apt to call "only" an historical interest. The application of the Aristotelian philosophy to the subject has more than that. One result of it was classification according to genus and species, the first step in the direction of making Biology a true science. Take a particular animal, say, your cat Tiberius. You can distinguish him from other cats by characteristics which belong to him alone, such as the way his colours are blended or the hairiness of his ears, but which are not necessary to him if he is to be merely a cat. It is the animal which possesses these necessary characteristics (called in Latin, *differentiæ*) that is what we mean by "a cat." But if we extend our observations we shall see that there are other animals which have many or some of the *differentiæ* of cats. If they had them all, they would, of course, be cats; not having them all, they are only cat-like creatures (*felidæ*—from *feles*, a cat), which have some fundamental characteristics in common with the cats. The *felidæ* again may be included in some wider division of animals, such as the mammals. Thus you may classify Tiberius as belonging to the *species* cat, which species in turn belongs to the *genus* of *felidæ*, a genus of the mammals. At the same time Aristotle has a grounded distrust of hard and fast classification. There are no hard and fast divisions in Nature herself, and therefore any system of classification we may invent exists merely for our convenience. That there *are* genera and species Aristotle is convinced, but how best to distinguish between them is a matter for debate. Accordingly, we find him classifying an animal now on one system and now on another. It is all right, he thinks, so long as we grasp the point that it must belong to *some* species and genus.

The importance of this is greater for Aristotle than for a biologist who believes in the evolution of one species from another. The Darwinian is more interested in the evolutionary process itself than in determining the species to which an individual plant or animal belongs. Aristotle for his part did not believe in evolution. He was perfectly familiar with the theory, which had been held more than a century before his time. But it looked as if the theory had broken down for want of evidence. The evidence must nearly all be drawn from sciences like comparative anatomy and palæontology and geology, which can hardly be said to have existed in his time. Over and above this it was his deepest conviction that each thing has its own end towards which it is moving; its own end and not another's; and therefore every species must be eternal and immutable.

This view leads Aristotle to regard as of transcendent importance the problem of reproduction. If a species is to maintain itself unchanged, it must contain within it, transmitted from parent to offspring, an unchanging and immortal principle. What he says on this subject is not easy for the layman to understand, but the biologists seem agreed that nowhere is he more profound and subtle. There is even something like a movement, not exactly "back to Aristotle," but towards adapting him to Darwin. It has been felt that Darwin, while proving the fact of evolution and offering an explanation of it, did not consider a still more fundamental problem, the mystery of life itself. He was quite right, of course, to stick to his last, but, after all, no theory of evolution can be entirely satisfactory which omits from discussion what it is that evolves. Aristotle felt this and began with the "vital force" or the "will to live," or whatever you call that which makes a flower or a beast *want* to survive. What, he asked himself, does it want to survive *for?* It must have some conscious or unconscious *end*—and so he was led to his teleology.

Whatever its value, this way of looking at the world did give him an insight which no other man has rivalled into what is meant by an organism. No doubt science can now improve considerably upon Aristotle's definition of an organism. That is not the point. The point is that no other philosopher has had so full a sense of organic life pulsing through the universe of thought and being. He often uses what we call abstract and technical language. But you will find that he never talks about abstractions except to deny their reality. This indeed is true of Plato also, who was led to his conception of an Ideal world, not because he found this world too real and substantial, but because he did not find it real and substantial enough. Aristotle's real world is a whole composed of unnumbered living elements—an organisation of organisms. That is never out of his mind, and the thought of it unifies all his thinking.

After the body, the soul. First, we must ask ourselves what Aristotle meant by "the soul." It is necessary to ask this question not merely because Christianity has given a new meaning to the word, but also because its meaning was by no means fixed among the Greeks themselves. In Homer *psyche* is something that exists in a man while he is alive, and goes out of him and becomes his ghost when he dies. It is, in a sense, the man's life, but Homer's thought is not capable of the abstraction necessary to grasp the notion of a life that is not merely a sort of airy replica of the body. Later, as reflection grew less naïve, *psyche* came to mean something much more (or less) than a ghost; it was that in a man whereby he is akin to the gods, his " soul " almost in the modern sense, the immortal part of him, the chief seat of the instinctive and the subconscious. This later view was historically the revival of a doctrine much older than Homer, but it was the doctrine a good deal refined and intellectualised. This was largely the work of the Pythagorean philosophers, a work continued by Socrates and Plato. In them we pass clearly from the psychic to the psychological; in fact, the governing principle in the Platonic *psyche* is pure thought. Soul has become almost " mind." Aristotle starts from that.

He could not, however, start wholly uninfluenced by traditional and current usage. Now, the average unphilosophical Greek thought rather of souls than of " soul." Every living thing had for him a soul in it, and that its own soul and no other thing's. Aristotle considers this point of view, and allows an element of reasonableness in it: there is a sense in which it is permissible and perhaps necessary to speak of souls. At the same time there is plainly something common to all souls, and we must try to find a definition of that. In view of this we may divide the human soul into three: the nutritive, the sensitive, the rational soul. The terms largely explain themselves. The nutritive soul concerns itself with nutrition and procreation, and is possessed by all living things whatever; the sensitive soul is concerned with perception and analogous processes, and is confined to animals; the rational soul is roughly what we call the reason, and is confined to man.

Aristotle makes it clear that he does not regard these as distinct and independent parts of the soul. They are rather faculties which must work together or not at all. Soul itself, he proceeds to argue, is one with body.

You may, of course, by killing a man, separate *his* soul from *his* body, but that is not the point. You have merely severed a temporary union. What you cannot do is to separate body and soul in *thought* any more than you can separate matter and form in thought. It follows from this that Aristotle does not believe in what is called personal immortality. Soul is immortal, but not your personal soul or mine. The only exception—and it is hardly an exception—is God, whom he regards as an entirely reasonable soul. The human soul has not yet quite got to that condition, and if it had, it would cease to be human. Still, Aristotle does sometimes speak of human reason as a part of the soul which is separable from the body. If God is a soul existing independently of body, then the human soul, so far as it is like God—that is, so far as it is reasonable—must be capable of a like independence. A puzzling argument.

As regards the three faculties or souls within the soul, they need not detain us long. The nutritive soul is simply what makes every living thing seek to feed itself and reproduce its kind. Aristotle observes that the one activity implies the other, Nature caring more for the race than the individual. The sensitive soul is naturally more complex. What is sensation or perception? Aristotle's predecessors had generally taken the view that it is a purely physical experience. (The view of Plato is more subtle.) Aristotle denies this entirely, but hardly escapes from it entirely. He is still influenced by the way the problem had first been stated. The question had been whether perception (conceived as physical) was the perception of " like by like " or of " unlike by unlike." Aristotle replies that it is neither; it is the assimilation of unlike to like. (So we talk of " assimilating " food.) But what is it in perception that is assimilated? It is the organ of sense. Thus, when we see a red rose our eyes are reddened. Even if this be true, it is a purely physical event, and Aristotle has not yet begun to explain what happens to the *soul* when the rose is seen. Yet he insists that perception is purely an act of the soul.

Of perception is born imagination; it is the lingering in the soul of perception after the object perceived is gone. The importance of imagination for him consists in this, that without it we cannot have mental images, and therefore cannot have memory. Of course, to remember a thing is not the same as remembering the image of the thing, but the image, in Platonic language, " reminds " us of the thing. And Aristotle makes a distinction between " memory " and " recollection," the point of which may be expressed in modern terminology thus : Memory may be " subconscious "; recollection is bringing " above the threshold of consciousness." But in all this, it is very necessary to be careful not to suppose that, while images are required for thinking, thoughts themselves are only images.

When he comes to the highest faculty of the soul, what we should generally call reason, he makes another of his distinctions. There is, he says, an " active " and a " passive " reason. Apparently he is certain that there must be a distinction in the mind answering to that which he makes between the efficient and the material cause of a thing. We say of a bronze lamp that the bronze is its matter or material cause, and that the artist (or the artist's thought guiding his hand) is its efficient cause, making the bronze into a lamp. Just so, Aristotle believes, the passive is acted upon by the active reason. You may express this by saying that the active raises the passive reason from the potential to the actual. Is metaphysics to be permitted thus to invade psychology? Questions, in their nature perhaps insoluble, at once suggest themselves. Is *passive* reason in any sense *reason* at all? As for the active reason, we can make out that the more it prevails in a man, the nearer, according to Aristotle, he comes to achieving the end of his being, the more he becomes man. But Aristotle will also have it that God is nothing but Active Reason. Are we, then, to say of a man that the more he resembles God the more he becomes truly man? This question the mystic would no doubt answer in an eager affirmative. But how could Aristotle do that, for whom man is an animal, and can never achieve his end by ceasing to be an animal and becoming a soul like God? No doubt he had his own answer to the question. He has not told us what it is.

Man, at any rate, is an animal. What kind of animal? Here at least the answer is known: man is a *political* animal. The treatise which we call the *Politics* deals with him as such. It is a perplexing book to discuss, because it has evidently been put together from various essays or studies, composed at different times, and pursuing different lines of inquiry. But even this is a minor difficulty compared with the fact that there appears within the book itself a complete change of method and attitude. The cause and nature of the change are plain enough. Plato, completely disillusioned about the world of politics as he knew it, and convinced that only the philosopher could set it right, went on patiently constructing models of scientific government. There is in the *Politics* a good deal of such Utopian thought—discussions of the ideal state, and so on—which is altogether in the vein, though without the imaginative excitement of Plato. Then comes the break. It appears that Aristotle suffered a revulsion from orthodox Platonism, which affected his thinking on political as well as other subjects. It was natural enough. Plato, tired of practical politics, turned to the ideal state; Aristotle, tired of ideal states, turned to practical politics. The rest of his book is concerned with the practice of states as he found them. The result is that the *Politics* is one of the most confused and untidy compilations ever attributed to a systematic thinker.

The quality is as uneven as the form. In truth, the *Politics*, taken as a whole, is disappointing—that is, disappointing from Aristotle. The fact is, he was not politically minded. Plato was, and it makes all the difference. It is possible to agree with much of Aristotle's criticism of an imagined polity like that of the *Republic* and yet feel that Plato knew of what he was speaking in a way that Aristotle did not. It is just because he understood political human nature so well that Plato makes his daring proposals; Aristotle reveals none of that intimacy. Where the latter was truly admirable was in the collection and arrangement of the material for the subject. To help him he described, or caused to be described, the constitutions of some 158 states. One of these descriptions, no doubt the longest, survives under the title of *The Polity of the Athenians*. It is invaluable to the constitutional historian, whose special science it may be said to have founded. But set it beside Thucydides and it appears an uncritical handbook devoid of historical insight or imagination. Aristotle, like so many ancient writers, is strangely deficient in the historic sense. Plato certainly possessed it, although the extent to which he possessed it may be debated. The proof lies partly in the power with which the more dramatic of the Dialogues are thrown into the past without many, or perhaps any, anachronisms, and partly in his attitude to tradition, which he considers has a true meaning in it, although he will not answer for the details. The attitude of Aristotle lacks this subtlety.

The greatness of the *Politics*—for with all its deficiencies it is one of the landmarks in the vast realm of political science—consists in two very Aristotelian things: its grasp of first principles and its respect for facts. The man would not be human if he did not betray some trace of bias, but no writer of eminence in this subject reveals more of the scientific spirit, supposed by some to be a purely modern virtue. To get the best out of him we have no doubt to make considerable adjustments of his thought to present conditions. We have to do with the change from the *polis* to the nation state. Thus, when Aristotle calls man "a political animal," he means an animal living in a *polis;* and when he says "'by nature' a political animal," he means that it is only in a *polis* that man achieves his "nature" or final end. Such a view at once challenges all our modern assumptions. A mode of defence has been suggested for Aristotle. He could not, it has been argued, foresee the collapse of the *polis* before the advance of the nation, and therefore cannot be blamed for preferring the former to the latter. It is very doubtful if Aristotle would have availed himself of this line of retreat. He was perfectly familiar with the idea of the nation as state. His life covered the very period when the old cities were trampled down by Macedonia. Aristotle did not see what that had got to do with the question. His problem was to find the sort of community in which human life flowered to its best. He found it in the city state, not in the nation, which he considered a rudimentary organism by comparison. And if we take his own test—the quality of the human product in either system—we might find him a little obstinate in the matter still.

Whatever side the student of politics may take, he will no doubt admit that the *polis* has an unrivalled value for the purpose of study. For there he finds all his problems on a small scale but in concentrated form, finds them luminously distinct and rapidly developing, instead of losing himself, as he sometimes must, in the vast obscure movements of modern democracies. He will also admit that the philosophy of politics is not dependent on forms and methods of government. Here Aristotle has had something to teach all his successors. He lays it down that nature has implanted in the human animal two needs or instincts: the instinct of sex and the instinct to command or (as it may happen) to obey. The first explains itself; the second is worth thinking over. Aristotle believed that some races of men were born to be the servants of others. He also believed that the woman was born to obey the man. This, of course, was reactionary even in Aristotle's day, and flat against the teaching of the Academy. It may be supposed his feeling was that, while human beings might be drawn together by the chemistry of the blood, it took something more than that to keep them together. The permanence of the first societies—that, he felt, was the hard thing to explain, and the explanation he offered was that the woman and the slave at heart *want* to be governed. At any rate, it is in this way, he thinks, that the earliest—which to him means also the simplest—form of society comes into existence; being what he calls the " household " or " family." It reminds one of what naturalists tell us about the gorilla. Darwin, who thought of this parallel, would evidently have accepted Aristotle's theory concerning the origin of human society as reasonably adequate. He would not, of course, have concerned himself with the further development of the theory, which was to this effect : In time, kindred families settle together in a " village," and the village, in suitable circumstances, joins with other villages to become a *polis*.

The objection at once suggests itself that this is really too base and mechanical an explanation. But Aristotle has a complete answer to that. He puts it in this way : The *polis* comes into existence with a view to living, but exists with a view to living *well*. That is to say, human life to be really human must be lived in society, for a perfectly solitary man would be "a god or a beast." It is this necessity which creates society, but society does not exist merely to satisfy this necessity. On the contrary, it exists to enable man to reach his end or " nature," to be the *good* man; and that is its true justification. If anything, Aristotle lays himself open to the charge of setting too high rather than too low a value on the moral and intellectual disciplines of the state. By the state is meant the *polis*, a city of reasonable size, not too large for all the male citizens to meet in one place and transact public business. That was the old Hellenic system, and Aristotle clings to it as Plato had clung to it. He must have seemed to some contemporary thinkers obstinately and unimaginatively conservative. The idea of cosmopolitanism was already abroad. So was a somewhat older idea that the state exists not " by nature " but " by law "; in other words, that it is the creation of human legislators and that consequently its claim upon our loyalty is to be measured only by its convenience. Aristotle rejects both these views.

On the other hand, as we saw, he will not go with Plato the whole way. Utopias fill him with doubt. The state, described in the *Republic,* where every citizen becomes, in Burke's phrase, " a public creature," would, he thinks, be no longer a state but an individual. It would be like a beehive. So Aristotle, perhaps too complacently, falls back on the institutions which, for all their recently incurred discredit, had, after all, worked so brilliantly in the past. His general position is this: To make any solid progress we must take things as we find them and work from that, even if among these things are slavery and the subjection of women. It is easy to condemn, as it is easy to misrepresent, this position. But one sees why it is to Plato that political idealists have always turned.

From the state Aristotle passes to the individual. Ethics, he says, is a branch of Politics. This is also assumed by Plato. It sounds paradoxical until one has grasped what the Greeks understood by " virtue." The " virtue " of a sword is what makes it a good *sword;* the " virtue " of a flute what makes it a good *flute.* So the " virtue " of a man is what makes him a good *man. We* prefer to say that virtue is what makes a man *good.* It is only a difference of emphasis, but in morals a difference of emphasis makes all the difference. Since, in Aristotle's words, the state exists in order that men may "live well," the statesman is presented with a moral problem. It is his business so to legislate and administer as to provide the "political animals" under his government with the best opportunity of realising their "nature." In a word, ethics is part of his science. Observe that this does not mean the subservience of morality to politics; it really means that politics is a moral business. Nor does it mean that men can be made better by act of parliament; it really means that acts of parliament should make it easier for men to make themselves better. From the point of view of the citizen the state is an opportunity for virtue.

What, then, is human virtue? It is, in Aristotelian phrase, the condition of the man who has attained his end. And what is the end of human life? It is, by general agreement, *Eudaimonia*—that is (as nearly as we can translate the word), Happiness; only when you ask people in what Happiness consists, they return very different answers. Aristotle's own answer would be that it is the effortless, and therefore pleasurable, exercise of all the faculties in their fullest development; for only then has a man achieved his end. Does this mean that only the perfect man has virtue? Strictly speaking, it does; Aristotle will not compromise (although he has been accused of doing it) on a moral principle. But no one is more sharply aware that the trouble in practice is the right application of the principle to any given set of conditions. To deny the possession of virtue in some degree to the man who makes the best application of the principle he can is like denying that the rose in your garden is a rose because it is not all a rose might be.

When Aristotle calls virtue a "condition" of the soul, the word he uses is a medical term which was properly applied to a condition or "habit" of the body. This is an almost startling evidence of the biological turn we find in all his thinking. Virtue is the health of the soul. It will help us to understand this if we know how ancient medical theory regarded health of the body. Bodily health, it was maintained, depends upon the "harmony" or balance of contending opposites, these being the so-called "humours" of the body, any one of which was always ready to aggrandise itself at the expense of the rest, so as to make a man "sanguine" or "phlegmatic," or as it might be. We may see from this how Aristotle was led to his famous doctrine of the Mean. Virtue, he says, aims at the mean between extremes. It is, of course, preposterous to criticise him as if he had said that there was a danger of being too virtuous. A man cannot be too virtuous any more than he can be too healthy. A man cannot steer too well between Scylla and Charybdis.

Take courage. It is not an unreasonable thing to say that courage comes somewhere between cowardice and foolhardiness. But this does not mean that the courageous man is courageous just because he is a little afraid. Such a view might be defended, but it is not the view of Aristotle. His brave man has no fear at all; bravery has become a condition of his soul, a second nature with him. He reacts to each danger with the exact amount of emotion necessary to preserve the "harmony" of his nature, not reacting too much like the coward, or too little like the foolhardy man. This is not mixing one part of cowardice with two parts of rashness or anything of that sort. It is something different in *kind* from both. As with cowardice, so with the other moral excellences. Virtue approaches its material in a totally different way from vice. It is not the victory of one part of our nature over another—that is vice—but the due subordination of each part to the whole, by which means, and no other, one obtains what we might call the maximum of moral efficiency.

After the Christian moralists with their proclamation of a war between the spirit and the flesh, even after Plato, the language held by Aristotle on the subject of virtue strikes us at first as tame and cold-blooded. This feeling is strengthened when we read his description of the *megalopsychos,* the typically great and good man, a gentleman who is said to "know his own value, which is high." The average reader rather wants to kick the *megalopsychos*. But let the average reader sit down and give us his own idea of the "perfect gentleman," and see if he does not want to kick his own creation too. It is one of the things that show Plato's genius for literature that he never attempts such a thing. Socrates is his hero, but a hero kept human by his humour and his irony. Aristotle would have been more interesting and illuminating if he had told us what historical characters he most admired. What he did *not* admire were cranks and zealots. Plato, who was by way of being a saint with a touch of the dogmatism and cantankerousness not unknown among the saints, would have had more sympathy with the enthusiasts. But if Aristotle pitches his note too low, we may at least say that there is nothing fundamentally ignoble in his conviction that the best human type is not produced by calling one part of our nature good and the other bad, and seeking to destroy the bad. It is all good, if we manage it on a good principle.

Now, the principle can be learned. It is this that makes moral progress possible. Here is genuine Greek doctrine; you must learn to be good. In morals this means learning good habits. It is the power of forming habits which distinguishes the animate from the inanimate—"you cannot teach a stone to fall upwards." The business of the moralist is to see that the habits formed by the animal man are good. This is why education is so important. The end of education, says Aristotle, quoting Plato, is to teach people how "to take pleasure in the right things"—a wonderful saying. If you ask what "the right things" are, Aristotle replies that they are the things approved by the "practically wise" man—that is, in effect, the good statesman. And what the statesman approves is what makes the good citizen, out of whom is made the good man, a higher being. For Aristotle insists that above the "practical wisdom," which is the special virtue of the citizen and the statesman, there is the "theoretical wisdom," which is concerned with the things of the mind. It was teaching of this kind which recommended Aristotle to Christian thinkers, although not merely he, but all the finer spirits of antiquity unhesitatingly put the contemplative above the practical life. Where the Greeks did differ from much Christian doctrine or practice was in refusing to separate the two. They believed that practical wisdom is futile unless directed by knowledge or "theory"; while, on the other hand, that activity of the pure reason, which is what Aristotle means by "theory," is impossible in the absence of practical wisdom.

But first we must learn citizenship. In any decent constitution the chief instrument of government is persuasion and not force. The art of persuading his fellows is of the highest importance for the statesman. In the ancient city and state, where everyone lived a public life, it was important for everyone. "The art of persuasion" is the Greek definition of *rhetoric.* Such a definition shows at once that to the Greeks rhetoric meant something a good deal different from what it means to us, who use it almost as a term of abuse. For them it meant chiefly the effective presentation of a case, and ancient rhetoric at its best regards as its worst enemies empty, over-emphatic verbosity and irrelevant "flowers of speech." Its great virtue is clearness, the primary virtue of all style. Aristotle, who has left a considerable treatise on the subject, adds the point that the effective presentation of a case depends not merely on clearness of statement, but on clearness of reasoning, which is by no means the same thing. He also derides appeals to the emotions extraneous to the argument, worked up pathos, and the like—in fact, the modern rhetorician's whole bag of tricks—and says that the emotion of the listener must derive from the truth of what the orator says. The *Rhetoric* is not much read in days when oratory is little studied as an art, and it is (for Aristotle) a somewhat rambling and uninspired book. For all that, it is full of good reading and good sense. Its importance to the literary historian is capital, for it became the standard treatise, expanded but never superseded by later writers, on what we may fairly call prose style.

As a sort of appendix to the *Rhetoric* is a tiny, mutilated treatise on the art of poetry, which some of us think valuable beyond estimate. It is not so much written as jotted down in Aristotle's most exasperating manner, and the labour of generations of scholars (rather hindered, one fears, than helped in this case by the speculations of philosophers) can hardly even yet be said to have got at its whole meaning. But scholarship has at least made it certain that the *Poetics* contains no transcendental moonshine about "poetry," but is practical to the point of laying its author open to the charge (unfair, of course) that he had no feeling for poetical beauty at all. Thus when he says that poetry is "imitation," some make sounds of deprecation, while others explain the dreadful word away. But Aristotle meant what he said. He would even have wondered what he had said wrong, for Plato had called poetry "imitation" before him, and most Greeks probably agreed. Yet it will be allowed that the Greeks knew something about the art of poetry. The truth is, of course, that one does not really understand a word until one knows its associations. The word "imitation" has ugly associations for us, but had interesting and even beautiful associations for the Greeks. Their art is to an astonishing degree imitative, the same themes and patterns recurring over and over again; yet one never thinks of that; one thinks only of its profound originality. This is because to the Greeks imitation did not mean copying or reproducing, but making the object of your art your own. Here religion, the mother of the arts, helps us to understand. As the central act in any old Greek ritual of any elaboration, we normally find a choric dance, and this dance is normally mimetic, or, as we should now say, dramatic. The dancers then "imitate." What is it they imitate? Some action or passion of their god; and as they danced they felt themselves in some way and to some degree become one with him. This feeling helps us to see what Aristotle means when he says of tragedy that its effect is by means of pity and terror to purge the hearer of emotions like these. In the battle of life the weakening things are timidity and self-pity. In the tragic theatre one sees terrible and piteous things befall some man or woman notably better and greater than oneself. Helped by the poet and helping him—for in the greatest poetry of the Greeks the poet counts on the co-operation of his audience, counts on them to understand the tragic irony of the situation—we as well as he "imitate" the hero, go out of ourselves, and, so far as imagination will carry us, enter into him and become him. In this way we get rid of that excess of emotion which is dangerous to the health of the soul just as the excess of some "humour" is dangerous to the body. It seems that Aristotle's theory of the function of tragedy was suggested by medical theory, which prescribed dancing as a cure for certain extreme cases of nervous instability. As it was suggested by medical theory, so it may be confirmed by it, for it appears to anticipate some modern views of the subconscious. The poet, however, is not a doctor; it is his art that matters. And here Aristotle is firm. Poetry is not in any direct sense "self-expression." On the contrary, the poet "imitates" something; loses himself in his subject. His æsthetic teaching comes to this: In the kingdom of art to lose one's soul is to find it.

BIBLIOGRAPHY

PLATO

TRANSLATIONS.—*The Dialogues of Plato,* by B. Jowett (Clarendon Press); *Plato* in the Loeb Series (Heinemann). Of separate Dialogues, *The Trial and Death of Socrates* (being the *Euthyphro, Apology, Crito, Phædo*), by Church (Golden Treasury Series, Macmillan); in the same series, *The Phædrus, Lysis, and Protagoras of Plato,* by Wright, and the *Republic of Plato,* by Davies and Vaughan, or A. D. Lindsay (Dent); the *Timæus,* in Archer-Hind's edition (Macmillan); *Laws,* by R. G. Bury (Heinemann).

EDITIONS.—*Plato's Euthyphro, Apology of Socrates, and Crito,* by J. Burnet (Clarendon Press); *Phædo,* by Burnet (Clarendon Press); *The Republic of Plato,* by J. Adam (Cambridge); *The Theætetus of Plato* and *The Sophistes and Politicus of Plato,* by L. Campbell (Clarendon Press); *The Philebus of Plato,* by R. G. Bury (Cambridge); *A Commentary on Plato's Timæus,* by A. E. Taylor (Clarendon Press); *The Laws of Plato,* by England (Manchester University Publication).

GENERAL.—*Plato: The Man and his Work,* by A. E. Taylor (Methuen); *Greek Philosophy,* Part I., by J. Burnet (Macmillan); *Plato and the older Academy,* by Zeller (Longmans, Green and Co.); *The Greek Thinkers,* vol. ii., by Gomperz (John Murray); *Plato and the other Companions of Socrates,* by Grote (John Murray); *Political Thought of Plato and Aristotle,* by E. Barker (Methuen); *The Myths of Plato,* by J. A. Stewart (Macmillan).

ARISTOTLE

(Editions marked with an asterisk contain translations of the text.)

TRANSLATIONS.—*The Oxford Translation,* edited by J. A. Smith and W. D. Ross (not yet completed). Of separate treatises, *Posterior Analytics,* by E. Poste (Clarendon Press); *Nicomachean Ethics,* by H. Rackham (Loeb); *Rhetoric,* by R. C. Jebb (Cambridge).

EDITIONS.—*De Anima,** by R. D. Hicks (Cambridge); *De Sensu et de Memoria,** by G. R. T. Ross (Cambridge); *Aristotle on Coming to Be and Passing Away,* by H. H. Joachim (Clarendon Press); *Metaphysics,* by W. D. Ross (Clarendon Press); *Nicomachean Ethics,* by J. A. Stewart (Clarendon Press), or J. Burnet (Methuen); *Politics,* by W. L. Newman (Clarendon Press); *Athenaion Politeia,* by J. E. Sandys (Macmillan); *Rhetoric,* by Cope and Sandys (Cambridge); *Poetics,** by Bywater (Clarendon Press).

GENERAL.—*Aristotle,* by W. D. Ross (Methuen); *Aristotle,* by G. Grote (John Murray); Gomperz, vol. iv.; E. Barker (see *Plato*); *Aristotle and the earlier Peripatetics,* by Zeller (Longmans, Green and Co.); *Outlines of the Philosophy of Aristotle,* by E. Wallace (Cambridge); *Aristotle,* by A. E. Taylor (The People's Books, Jack); *Aristotelianism,* by J. L. Stocks (Our Debt to Greece and Rome, Longmans, Green and Co.); *Aristotle's Theory of Conduct,* by T. Marshall (Fisher Unwin).

BENN'S SIXPENNY LIBRARY

THE
FREEWILL PROBLEM

By HERBERT WILDON CARR
Hon. D.Litt (Durham), Hon LL.D (Southern California), Professor of
Philosophy in the University of London and Visiting Professor
in the University of Southern California.

LONDON: ERNEST BENN LIMITED
BOUVERIE HOUSE, FLEET ST. E.C.

First published 1928

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS, LTD., GUILDFORD AND ESHER

CONTENTS

CHAPTER PAGE
I. INTRODUCTION - - - - 5
II. BURIDAN'S ASS - - - - 9
III. CALVINIST AND ARMINIAN - - - 11
IV. JONATHAN EDWARDS - - - - 18
V. THE HOW AND THE WHY OF HUMAN ACTIONS - 22
VI. SPINOZA'S DETERMINISM - - - 25 L
VII. LEIBNIZ'S FINALISM - - - - 28 L
VIII. TRANSITION TO THE MODERN PROBLEM - 31 L
IX. THE EVOLUTION HYPOTHESIS AND THE FREE-WILL PROBLEM - - - - 33 L
X. THE VITALISTIC CONCEPTION OF EVOLUTION - 38 L
XI. THE FREEDOM ESSENTIAL TO LIFE - - 43 L
XII. LIFE AND MATTER - - - - 52 L
XIII. THE THEORY OF CREATIVE EVOLUTION - 56 L
XIV. THE THEORY OF EMERGENT EVOLUTION - 63
XV. THE KINGDOM OF MAN - - - 67
XVI. CONCLUSION - - - - - 77

NOTES, REFERENCES, AND BIBLIOGRAPHY - 79

THE FREEWILL PROBLEM

CHAPTER I

INTRODUCTION

ANYONE who visits a modern museum of natural history will be impressed with the great accumulation in recent years of the evidences of the antiquity of man. Since the human race made its first appearance on the earth, at the end, as we believe, of a long natural evolution it has undergone a long cultural evolution. We can differentiate three definite stages in the progress of this culture. They seem to have followed one another since man's structural evolution was complete, and to have been unaccompanied by any important biological modification of the individual organism. We may name the three stages *Homo faber, Homo credulus,* and *Homo sapiens,* and we may translate these terms as the artificer, the artist, and the philosopher.

The first evidence of man's existence in past geological epochs is the discovery of the tools he fashioned for his use. In the long history of the evolution of living forms, a history which, notwithstanding wide breaches in continuity and innumerable missing links, we yet feel confident in regarding as established in the record of the rocks, man is the first and only instance of an animal successful in adaptation to its environment which has confirmed its position and established its dominance by superposing an artificial life on its natural life. Man is the first animal to use tools and thereby artificially to rise superior to the conditions of his environment. It is the beginning of emancipation. A new future opens before this superior animal. No longer dependent on natural selection for its survival, it can now modify the environmental conditions to meet its requirements. A new kind of advance is possible. Following on this heightened natural power, man's next step is to discover and use a strange new spiritual power, a power of imagination. He now fashions spiritual tools, gives shape to his own mental creations, externalizes his intuitions, and bows down in craven superstition before creatures of his own fantastic devising. From an artificer of material tools he has become an artist, creating gods in his own image. Lastly, we find him master alike of nature and of himself, with large discourse of reason, understanding, scheming, deliberating, choosing, conscious of moral responsibility. This moral responsibility is the freewill problem.

In the modern period a great philosopher, Leibniz, long before the scientific discoveries of the nineteenth century enabled us to read man's history in the record of the rocks, formulated the freewill problem in precisely this way. He set before himself the task of showing how the moral world arises out of the natural world, how by ways of nature man is led to grace. The task of philosophy in this scientific age is identical, and now as then the hope of humanity depends on its success. Man's power over nature has brought with it a heavy burden of moral responsibility. Knowledge and power may turn man to self-destruction or may bear him onwards to yet unimagined triumph.

First let us concentrate attention on the fact. The peculiar characteristic of man which has enabled him by artificial selection to supersede natural selection is primarily the freedom of action conferred on him by his organic structure. When we compare the functional activities of man with those of the animal world we find that the human mode of activity is distinguished by the amount of intelligent deliberation and choice which govern all decisions. Deliberation and choice imply freedom. The freedom, however, may be purely negative. In reflex action there is automatic response to stimulus, and the introduction of freedom may mean at first no more than a power of inhibition. Such a negative power would not account for intelligent action. Intelligence implies freewill, a power in man not only to hesitate and deliberate but also to choose and determine the responsive action. It is this freewill, this positive use of freedom, which gives rise to a problem. *Prima facie* freewill is a universally recognized fact. The problem is in regard to its rational interpretation. Is it a subjective illusion arising simply from the fact that we are conscious or aware of our actions in performing them and unconscious of the motives determining them? Or, is there in man a positive power, not only to give effect to what he wills, but to will what he will, to form and shape the end which he sets before him? In the first case we suppose all our actions to be determined by motives effectively external and beyond our control. In the second case we affirm freewill as a positive power of self-creation involving full moral responsibility.

In the pre-evolution period, freewill was debated as an abstract moral and religious problem. Since the evolution theory has been accepted in science freewill has become a problem of metaphysical interest involving opposite principles in the interpretation of living activity.

There is a principle of reason which governs all our thinking about things and all scientific research into origins. It is the principle that there is a cause of everything which happens. When we cannot discover this cause we are never in doubt as to its existence. The idea of freewill seems to come into direct conflict with this principle of reason, or, as it is sometimes called, this law of thought, and consequently the doctrine of freewill always presents an aspect of paradox. It seems to affirm spontaneity in a world which we are only able to conceive as determined, as bound up in a chain of necessity. In examining the various forms of the freewill doctrine we shall find, therefore, that there is always the initial difficulty of stating the theory of freewill in such a way that it does not stand condemned at the outset as a contradiction in terms. We shall see that this applies with more force to the older forms of the freewill theory than to the new concepts which have their origin in the idea of evolution.

Dr. Samuel Johnson, according to his biographer Boswell, dismissed the problem with his characteristic blunt common sense. "Sir, we know the will is free and there's an end on't." Centuries earlier, Laurentius Valla (1406-1457), a learned and witty medieval writer, in a treatise on the will in the form of a dialogue, makes one of his characters say: "Tell me then which leg I shall put forward next and I will show that you lie by advancing the other." It is not, however, by such practical tests that the problem is to be solved. Whether there is freewill is the most searching question of philosophy. It goes to the depth of the metaphysical problem. What is the basis of reality, the true spring of existence? Is it blind chance or is it reason? Is the real the rational, or is the rational a mere subjective phenomenon of self-consciousness? Are life and mind original and creative, or are they an inexplicable emergence from a non-rational matrix which for want of a better concept we term matter?

The main interest to-day of the freewill problem is to see how the old abstract puzzle has changed into a real concrete interest.

CHAPTER II

BURIDAN'S ASS

> " Intra due cibi distanti e moventi
> D'un modo, prima si morria di fame,
> Che liber' uomo l'un recasse a' denti."
> DANTE, *Paradiso IV*.

" Between two viands, distant and attractive in equal measure, a free man would die of hunger, before he would bring one of them to his teeth."—NORTON'S TRANSLATION.

FREEWILL is a problem of philosophy. It has never offered any difficulty to the plain man or disturbed his equanimity. At various historical epochs, however, and under the profound influence of religious ideas and their attendant emotions, it has parted mankind into the most bitterly hostile camps. In a less fierce but not less strenuous opposition it has at times divided philosophers on fundamental principles. In itself it is a problem of the purest and deepest intellectual interest.

In the fifth century before Christ, Zeno, a Greek philosopher of the city of Elea, propounded the theory that nothing moves. He offered four proofs, each a demonstration that movement is impossible. One of these was the famous puzzle of Achilles and the tortoise. It is impossible, said Zeno, for Achilles to overtake the tortoise in a race if the tortoise has a start, for while Achilles is covering the part of his course over which the tortoise has moved, the tortoise will have moved to a new position, and though the race last for ever, the tortoise will always be ahead and Achilles behind. He concluded, therefore, that movement is an illusion. No one from his day till now has been able to point to a flaw in his arguments. Philosophers in every age have tried, and at times have thought they had succeeded, but without ever giving universal satisfaction. Mathematicians and philosophers are as embarrassed to-day as at any time before in face of the problem. It shows that between theory and practice there may be absolute discrepancy without anyone being disconcerted or disturbed by the fact. Whether movement is appearance or reality makes no difference in ordinary life. The freewill problem is in a very similar case. A medieval logician, Buridan, famous like Zeno for picturesque argument, declared that were an ass to be placed between two trusses of hay, each offering it an equal incentive, it would die of starvation. If the opposite motives attracting it to the right and to the left were evenly balanced, it would be unable to exercise choice. If anyone has given a satisfactory answer to Buridan, I do not know what it is. Like the problem of Achilles and the tortoise, so with Buridan's ass, if the conditions fulfil the requirements, Achilles will not overtake the tortoise and Buridan's ass will starve. Certainly we all imagine that we can choose freely in cases of pure indifference, but it invariably turns out, if we are able to analyze our motives, that the imaginal indifference is inattention or ignorance.

We may state the problem of freewill in terms of Buridan's ass most conveniently, with the advantage also that as an ass is without discourse of reason and has no soul to be saved, the question can be posited in purely logical terms and without metaphysical implications.

Buridan's ass has before it at every moment of its living activity a choice between alternatives, a real freedom, a will controlling and directing its actions: How is that will determined? Action which is not voluntary is mere movement, mechanically and externally determined, only action which is determined by motives is voluntary. By the hypothesis, therefore, if the opposed motives are equally balanced the action will be null. It is quite beside the point to say that no poor ass ever was, or could be, in this predicament. The ass merely serves the purpose of the argument. Is the logical conclusion avoidable? Is there any alternative?

The only alternative is to deny that the will is determined by motives. A freewill is then defined as a will which is autonomous or self-acting, indifferent to motives and able to determine action regardless of them. It is to this position that the defenders of freewill have always been driven in the religious controversies. The most famous of these controversies is associated with the name of Jonathan Edwards, the American philosopher of the eighteenth century, whose treatise on *The Freedom of the Will* is rightly regarded as classical. We may most fitly begin our inquiry with an account of his work. First, however, we must explain the nature of the dispute between the Calvinists and Arminians.

CHAPTER III

CALVINIST AND ARMINIAN

When the Reformation became an accomplished fact in Europe in the sixteenth century, the doctrine of the reformers crystallized under its two great leaders, Martin Luther and John Calvin. A very marked divergence soon manifested itself between their followers. The Lutheran influence had spread through Germany and Scandinavia, the Calvinist influence, established at Geneva, spread through France and

Scotland, drawing to it Holland and England. The doctrinal divergence between Lutheran and Calvinist was comparatively unimportant. The verbal inspiration of the Bible was accepted by all the reformers, and Scripture was authoritative against Church authority supported by tradition, but differences of individual interpretation soon arose. The Lutherans, while rejecting the doctrine of transubstantiation, still insisted on the literal interpretation of the words: "This is my flesh and my blood." The Calvinists held that the Sacrament was simply a commemorative Lord's Supper, and that the words expressed only in metaphor a purely spiritual fact. This difference did not, however, constitute a breach or raise a bar to union. The practical divergence between them was, however, more important politically, for it affected their views on Church government. The Lutherans held to episcopacy, the Calvinists devised a scheme of unsacerdotal government by elders, known as presbyterianism. Since the Church claimed to exercise supreme authority over the individual members of the community, presbyterianism was found in practice to usurp or subordinate the office of the magistrate.

The doctrinal reformation was the reaffirmation of the Pauline principle of justification by faith against the principle of sacramental regeneration. The philosophical formulation and rational defence of this new principle was the work of John Calvin, unquestionably one of the world's great intellectual geniuses. Born in 1509, at Noyon, in Picardy, he was eight years old when Luther, on All Saints' Day, 1517, nailed his ninety-five theses to the church door at Wittenberg. Not till twelve years later did the doctrines of the Reformation begin to be widely diffused through France. Calvin, who was studying for the priesthood, came under their influence when nineteen years old. He gave up his clerical studies, not on account of religious scruples, but in order to qualify for the legal profession, in which his father thought there was better prospect of success. At this time, it seems, he was more interested in the new learning than in the reformed religion, and his first book was a Latin commentary on Seneca's *De Clementia*. It was not until he was twenty-five years old that he definitely broke with the Catholic Church and joined the reformers. He soon came to be their recognized leader in France. From his twenty-eighth year till his death in 1564, except for a brief interval of exile, he was settled at Geneva. It was there that he devoted himself to the task of formulating in his *Institutes* the doctrine of the reformers and their confession of faith.

Calvinism is identified for us with the doctrine of predestination and election to grace and its peculiarly revolting logical consequence, the doctrine of reprobation. Nothing seems able to relieve the gloom or modify the horror of the thought of a creation of sentient beings foreknown to be doomed to an eternity of pain. The attempt to reconcile the attributes of God, His infinite mercy, forbearance, and loving-kindness, with the holiness which demands eternal punishment as the "wages of sin," appears almost sacrilegious. Calvin was the founder of this theological, metaphysical system, and we cannot help judging him by it. Also on the practical as well as on the theoretical side, his memory bears a stain. He was responsible for the arrest and consequent judicial condemnation of Servetus and his subsequent burning at the stake for heresy. It is impossible to acquit Calvin himself of direct responsibility for the tragedy. It occurred when his influence and power were paramount in Geneva, and he not only did not interfere to save his old antagonist, but actually gave his approval to the death punishment. Unlike Luther, Calvin makes no appeal to our heart, and yet the service Calvin rendered to the Reform was probably greater even that Luther's.

To appreciate the intellectual grandeur of the work which Calvin accomplished, we must take into consideration the nature of the task and its almost superhuman difficulty. It was to rationalize and systematize by the most rigid logic the Christian revelation and rule of life as it is presented in the Scriptures. His work was not a philosophy of Christianity, rather was it an exposition of an authoritative revelation of truth. It was not an arbitrarily chosen task, and his work of exposition was not the outcome of a fertile imagination. It was a task set for him by the circumstances of his age and undertaken in the spirit of a lawyer interpreting a legal code.

In the sixteenth century, when the doctrines of the reformers were spreading throughout Europe, everyone, whether his sympathies were with the old order or the new, believed that the Scriptures were the inspired Word of God. The writers of the various books of the Old Testament and of the New were "sure and authentic amanuenses of the Holy Spirit." The Catholics held that this divine direct revelation of God to man had been committed to the Church, which alone had authority to interpret it; the reformers held that it spoke directly to the individual. No one doubted that the historical events recorded had actually taken place. No one questioned the fact that the world had been created by God in six days, four thousand years before the beginning of the Christian era; that the first man Adam and his consort Eve had been created in a state of innocence; that by their transgression they had brought death and suffering on the whole human race; that the generations following our first parents lived longer lives, and that the world increased in wickedness till destroyed by God in a universal deluge; that the present races of man are the offspring of Noah, the one righteous man who, with his family, had been spared; that God made a covenant with Abraham in fulfilment of which he chose the race of Israel to be a peculiar people; that in fulfilment of prophecy and to accomplish the divine purpose of human redemption, the Son of God had become incarnate in the person of Jesus, born of a virgin; that Jesus the Messiah, rejected by the chosen people, had died on the cross, a sinless victim, as an atoning sacrifice to God for man's original transgression; that justification was now offered to all who by faith showed repentance and the mark of spiritual election.

This was the accepted scriptural theory. It had not to be proved or defended against criticism, but it had to be rationalized. The central point on which it all hinged was the act of faith. What was the nature of this act to which so tremendous a consequence attached? Was it a merely formal and outward sign of submission to the discipline of an institutional Church; or was it the spiritual sign of an inward conversion, the evidence of inclusion in the company of God's elect? Calvin's answer is based on the conception of an intellectual system in which sin is opposed to grace. The sin of man confronts the grace of God. Man, sinful through participation in the original transgression, can do no right. Man is born in sin, corrupt in his nature, and in the actions which must follow from his nature. Salvation can only be the work of God, man himself can contribute nothing to it. The scheme of this work of grace is clearly set forth in Calvin's system. Jesus Christ, the incarnate Son of God, has fulfilled all that is required in a Redeemer, and has merited for man the grace of salvation. To obtain this salvation man must be united to Christ. This spiritual union is the work of the Holy Spirit. By the operation of the Holy Spirit the believer through faith is made a partaker of the death and resurrection of Christ, the old sinful nature is crucified with Christ, and the man new-born is raised with Christ to a new life of righteousness and holiness. The assurance which the believer has of salvation he receives from the witness of the Holy Spirit, but this operation of the Spirit rests on the divine choice, the free election of the individual to grace, and this free election depends on God's eternal sovereignty, whereby He has predestined some to eternal life and the rest to condemnation and eternal death. If we are revolted by this stern and terrible "decree," involving the merciless torture of helpless human beings, we must remember that Calvin and the reformers did not invent the doctrine. It was part of the Christian theory, based on the actual words of the gentle Jesus himself, uttered in the fullest solemnity: "Then shall he say also unto them on the left hand, Depart from me, ye cursed, into everlasting fire, prepared for the devil and his angels." It was an accepted part of Christian doctrine. Calvin's work was to justify it by basing it on a rational concept of the divine nature.

Calvin's severe view of the "divine decree" aroused humanitarian protest and doctrinal criticism in his own time, but no effective opposition appeared in the reformed theology until a generation later. The founder of the anti-Calvinistic School was a Dutch theologian, Jacobus Arminius (1560-1609), and from him the modified reform theology has received its name, Arminianism. The Arminian doctrine is that the sovereignty of God is compatible with the freedom of man. Though needing to be regenerated before he can do what is good and well-pleasing to God, man is free by his original nature. He needs the divine assistance because since the Fall and in his state of sin he is unable to do right by himself. Even when regenerate he is dependent on the divine grace for any good thing he does, yet though he has sufficient grace to persevere he may himself cause the divine grace to be ineffectual.

The opposition between the Calvinist and the Arminian was not, therefore, on a point of doctrine, but on the interpretation of the Gospel injunction to believe on the Lord Jesus Christ in order to receive salvation. On the main doctrines, the Atonement and justification by faith and on the terrible consequences of rejecting the offered salvation, both were in essential agreement. They were divided on the nature of the act of faith, whether it is within the power of man himself, an exercise of his freewill, or whether it is wholly and absolutely the work of God, to the redeemed the sign of election.

In this way originated the great controversy on freewill among the churches of the reformed religion. It has its reverberations even at the present day. The theologians went to the philosophical armoury for their weapons, and the problem of freewill became more than a simple religious question. From the purely religious point of view, the Arminian doctrine made the widest appeal on account of its concession to humanistic sentiment, and also because of its apparently greater consistency with the evangelical command to preach the Gospel everywhere, inviting men to repent and believe. The only alternative to the freewill doctrine seemed to be that God enjoins commandments impossible to perform. To many this is too hard a saying. The logical strength in the controversy lay, however, on the Calvinist side, and this was demonstrated in the remarkable work of the New England pastor-philosopher, Jonathan Edwards. It is no exaggeration to say that his masterly treatise on *The Freedom of the Will* has been and still remains without a reply. The interest has changed, the theology has become antiquated, it no longer appeals to heart and to conscience, but the logic is triumphant.

CHAPTER IV

JONATHAN EDWARDS

Jonathan Edwards (1703-1758), though primarily a theologian, in the sense that he studied theology professionally as a tutor and was distinguished as an earnest and successful preacher, was a philosopher entitled to rank with the great names of those who represent the history of thought in the modern era. His theology was Calvinistic, the orthodox Presbyterian doctrine, and the principle of this theology was the divine revelation of God to man in the Scriptures, set forth in the historical record of God's dealings with a chosen nation in the Old Testament, anticipatory of the fuller revelation in the New Testament of a spiritual election to a spiritual communion, a family of the redeemed, a fellowship of the sons of God. In philosophy he was an idealist. His philosophy had much in common with that of his older contemporary, Bishop Berkeley. He held that only minds are real; that matter exists in idea alone; that God is not in space, but space is in God; that there is no reality in the ultimate sense but God. He had studied Locke, Newton, Cudworth, and the English Platonists, and, generally, the writers who represented the living thought of his age. He was the fifth child and only son in a family of eleven. He had a happy marriage and a family of twelve children. In 1758 he accepted the presidency of the College of New Jersey (now Princeton University), and one month after his installation he died of inoculation against smallpox. His portrait hangs in the hall of Princeton University, and impresses the beholder with its mild and gentle sweetness of expression, combined with the earnestness of scholar and mystic. It has been matter for wonder that a soul so human and lovable should have been unappalled at the severity of his theology. He is, in fact, almost better known by his sermons on hell than by his philosophy. He did not shrink from the most realistic presentment. "The God who holds you over the pit of hell, much as one holds a spider, or some loathsome insect, over the fire, abhors you and is dreadfully provoked; his wrath towards you burns like fire; he looks upon you as worthy of nothing else but to be cast into the fire; he is of purer eyes than to bear to have you in his sight; you are ten thousand times so abominable in his eyes as the most hateful and venomous serpent is in ours." We wonder how he could sit peacefully in his family circle with this ever-present awful conviction that the strongest ties of human affection were unavailing to avert the fate of one reprobate sinner. What is most important to bear in mind, however, is that his religious brethren with whom he was engaged in controversy did not differ from him in this belief in the minutest detail. Every Christian, Catholic or reformed, believed in the reality of hell and the personality of Satan, and in the unalterable fate of that vast crowd of human individuals who passed out of life unregenerate. The only difference was that to the Calvinist the opposition between the holiness of God and the sinfulness of man—that is, the absolute irreconcilability of holiness and sinfulness—is the only rational basis of the Atonement. Had there been any possible way for God to save the sinner without exacting the penalty of sin, Christ need not have died. The Arminian preacher would have endorsed every word of the sermon from which we have quoted, "Sinners in the hands of an angry God," he only differed from the Calvinist in his view that the act of faith was a freewill act on the part of the repentant or aroused sinner.

The full title of the philosophical treatise is: "A careful and strict inquiry into the modern prevailing notions of that Freedom of the Will, which is supposed to be essential to moral agency, virtue and vice, reward and punishment, praise and blame." The treatise falls into four parts. In the first part there is a careful definition of terms; in the second, a discussion as to whether the liberty of moral agents can be based on any sort of freedom of will; in the third, a discussion as to whether freedom of will is necessary to moral agency; and in the fourth, a defence of determinism.

The argument is a very simple one and conducted on the plane of metaphysical reasoning and common-sense ideas, a great point in the criticism being that metaphysics is quite consonant with plain good sense. Except for illustrations there is no appeal to scriptural authority. The will is defined as the faculty of choice, and the agent exercising choice is the mind or soul. In every volition there is a preference or inclination with regard to some object of desire. What then determines the will? Clearly it is the motive which at the actual moment of choosing is strongest. This motive must have been apprehended or perceived, for an unperceived motive is nothing, and also it must appear good in the meaning that it is most agreeable or least disagreeable of the alternatives present to the agent choosing. In this simple statement of fact there seems, however, to be a direct contradiction. Choice implies liberty; determination of the will by the strongest motive implies necessity. How are liberty and necessity to be reconciled? This is the problem. The libertarian solved it by denying necessity. The will, he declared, at the moment of choice is indifferent and in willing the will determines itself. Freedom to choose means indifference to motives, a power in itself to determine action regardless of motives. The man with freewill can know good and choose evil, or eschew evil and choose good irrespective of inclination or nature. In this self-determination freedom consists. The necessitarian, on the other hand, denied that there is any such freedom in an abstract faculty of the soul. In the moral sphere, as in the natural sphere, everything is bound up in a necessary causal chain, which brings it about that every agent acts according to his nature. Freedom is not a liberty of indifference, it is the opportunity to do as one pleases.

The treatise may be read with advantage to-day. Its effect on the reader is still extraordinary in the discovery it makes of the number of absurdities which lie concealed beneath some of our most ordinary beliefs. How can I perform a free act—that is, a moral act—if the condition of freedom be a will indifferent to motives in the exercise of choice? The libertarian position is analyzed in detail, criticized from every possible angle of approach, and finally declared to be a metaphysical notion of which there is no idea, an absolute nonentity. "If some learned philosopher, who had been abroad, in giving an account of the curious observations he had made in his travels, should say he had been in *Terra del Fuego,* and there had seen an animal that begat and brought forth itself, and yet had a dam and sire distinct from itself; that it has an appetite and was hungry before it has a being; that his master who led him and governed him at his pleasure was always governed by him and driven by him where he pleased; that when he moved he always took a step before the first step; that he went with his head first and yet always tail foremost; and this though he had neither head nor tail. It would be no imprudence to tell such a traveller, though a learned man, that he himself had no notion or idea of such an animal as he gave an account of, and never had, and never would have."

The positive contention of the treatise is that unless we suppose a necessary connection between cause and effect, universally valid, such that the past has determined the present and the present is determining the future, we have no basis for moral action. We admit this necessary connection in the natural world, and the principle applies with equal force in the moral world. Admit caprice and there is no responsibility, no ground on which we can award praise or blame, reward or punishment.

The single purpose of the treatise was to defend the Calvinist doctrine and discredit the specious Arminian opposition, based on sentimentalism though formulated in a rational thesis. There is no attempt at a theodicy. The purpose is not to reconcile the omnipotence of God with the existence of evil. The sovereignty of God, which is the ultimate conception on which the Calvinist doctrine is based, transcends reason and tends toward mysticism. What the Calvinist theology sought to rationalize was the Pauline doctrine of the fall of man and his redemption through the atoning sacrifice of God incarnate, and the justification of the elect by faith.

CHAPTER V

THE HOW AND THE WHY OF HUMAN ACTIONS

THE great dispute between Calvinist and Arminian was not confined to the reformed religion, it had its counterpart in the Catholic Church in the dispute between Jansenist and Molinist. The whole controversy has lost its interest for the modern world. We have ceased to cast our cosmic conceptions in theological moulds. But though the passions have died down and the old formulas have become meaningless, something of real value is left behind, an attainment of a new level in the historical development of human thought. We owe to the Calvinist preacher, Jonathan Edwards, the clear demonstration of the impossibility in theory and the absurdity in practice of locating freedom in an abstract faculty, the will, distinguishable from the other faculties of the soul. Since his treatise, whatever conception we may form of human freedom, we recognize that there is no place in natural or moral science for caprice. But then, if we have to reject the alternative of a liberty of indifference, are we not back in the dilemma of Buridan's ass? Is there any other alternative which will rescue the animal from its impending fate?

Let us consider, then, the metaphysical import of the denial of a liberty of indifference, the rejection of the view that the will in choosing between alternatives determines its own choice without regard to external influences posing as motives. The facts of our human existence can hardly be said to be in dispute. We find ourselves in a world in which everything is in a necessary causal connection, a world in which everything is determined by its relation to everything else, and yet we have in ourselves a feeling of freedom; though dependent on the world we are yet detached from it and can truly initiate action in it. We have a conscience which leads us to assume responsibility for our action. Is this a pure illusion? Is the feeling of freedom a mere consequence of ignorance? It may be so. Our apprehension can take in only a minute range of the conditions which are determining our actions, but would not an infinite intelligence contemplating the world see all its future possibility and all its past actuality as one present fact? From this standpoint the freewill problem assumes a new form. Instead of being an individual problem it becomes a universal problem, and instead of being an ethical interest it acquires a metaphysical importance of the first order. Let us assume that all our actions are determined by causal relations and that causes are of two kinds, the purposes for which the actions are intended and the forces which carry them into effect. Spiritual purposes and physical forces are equally causes. The purpose or end on account of which the action is performed is its final cause; the means by which it is performed is its efficient cause. Final causes are ideal, they have no efficiency. Efficient causes are real and work mechanically subject to the physical law of reciprocity, the equivalence of action and reaction. Of every action accordingly we can ask *why* we did it and *how* we did it. The answer to each question is a reference to an entirely different kind of relation, one a relation to what we call the real facts of the physical world, the other a relation to what we call the ideal facts of the mental or spiritual world. Here, then, we have the freewill problem in a purely philosophical form, altogether detached from the tremendous consequences to the individual implied in the religious doctrine. Finality implies freedom in the agent, efficiency implies mechanistic determinism. Efficient causes are associated with the body, final causes with the mind, and, consequently, the problem of their nature and relation to one another leads to the mind-body problem.

In philosophy, therefore, the problem of freewill depends on a more fundamental problem, the status of final causes. Are ends or purposes to be considered as existent in their own right, or are they a mere appearance? Are they constitutive of reality or only a subjective aspect of it? It is impossible to decide by pointing to a fact of experience, for in philosophy all facts of experience stand in need of interpretation. The question, therefore, is whether we can conceive nature as consistent with freedom and conversely whether we can find room for freedom in the system of nature.

The two philosophers who represent the opposite sides in this presentment of the freewill problem are Spinoza and Leibniz. They were contemporaries, but they worked out their philosophies quite independently of one another. They lived in the seventeenth century. Spinoza is the determinist. In his philosophy the world, both in its material and in its ideal aspects, is the expression of the nature of God, or, to use his own terms, mind and nature are modes of the divine substance. Leibniz is the voluntarist. In his philosophy the world is the actualization of the ideas of God. The universe before its realization pre-existed ideally in the divine mind.

All determinist theories in present philosophy derive from Spinoza, and all voluntarist theories in some degree accept the principle of Leibniz.

CHAPTER VI

SPINOZA'S DETERMINISM

Spinoza rejected final causes as pure illusion. He rejected them not in order to avoid a logical dilemma but on the ground that they are inconsistent with a rational conception of the reality of the universe. They are inconsistent with the idea of God as the one substance in whom we live and move and have our being. "If God acts on account of an end, he necessarily desires something which he lacks," and how are we to reconcile this with the perfection of God? God must be conceived as existing and acting from the necessity of his nature. All things are predetermined by God, not through his foreknowledge or understanding and not through his goodwill, but through his absolute nature or infinite power. If, then, final causes can have no meaning when thought of as determining the actions of God they can have no reality in human nature. How, then, does the illusion arise? It arises from human ignorance, an ignorance which is part of human nature itself. Men are born in ignorance of the causes of their existence, but they find in themselves the desire to seek what is useful, and, moreover, they are conscious of this desire. They think themselves free, therefore, because while they are conscious of what they wish they are ignorant of why they wish, and they never even dream of the causes of their wishes. Since, then, men do all things with an end in view, or, in other words, since they seek what is useful, the final causes of things seem to be the real causes, and they have no interest in any other. As it is only final causes which induce them personally to act they suppose all other natures are the same. They find themselves equipped with the means by which they seek the useful, for example, with eyes for seeing, teeth for mastication, and the like, and they find in the world around them vegetables and animals for food, the sun for giving light, the sea for breeding fish, so they think that all these natural things exist for their use and were made for them. Since they do not make them themselves they believe someone else has made them for their use. Hence arises the idea of a God who has made all things purposively. It is a misconception which has degraded into debasing superstition. *Nature has no fixed aim in view and all final causes* are mere fabrications of men. In nature all things proceed from necessity and with the utmost perfection.

How, then, does Spinoza meet the dilemma of Buridan's ass? We have his own answer. "If man does not act from freewill what will happen if he is in equilibrium like Buridan's ass? Will he perish of hunger and thirst? If I answer yes, it will seem that I am conceiving not a real man at all, but only an ass or the statue of a man; but if I answer no, then I shall be conceiving a man who can determine himself and consequently a man with the faculty of going where he will and doing as he wishes. My answer is that I fully agree that a man placed in equilibrium, such that he perceives nothing else but hunger and thirst and food and drink equally distant from him, would perish of hunger and thirst. If you go on to ask me whether such a man ought to be regarded as an ass rather than as a man, I can only say I don't know, just as I don't know how a man ought to be regarded who hangs himself, or how children, fools, and madmen are to be regarded."

It will be seen by this that Spinoza is quite uncompromising in his doctrine and never seeks to mollify it in any respect. All things follow by the eternal decree of God with the same necessity as from the essence of the triangle it follows that its three angles are equal to two right angles. The ethical doctrine rests on a metaphysical basis. Happiness or blessedness consists not in favours received, but in the knowledge of God. This knowledge of God teaches us not to despise, hate, or ridicule anyone, to be satisfied with what we have, and to be ready to help our neighbour not from pity, partiality, or superstition, but from guidance of reason.

It should be noticed that Spinoza's doctrine is neither mechanism nor materialism. Mind and body, the extended world of nature and the ideal world of thought, are modes of the divine substance, but this substance is conceived as eternally perfect and infinite, and from that concept follows the rational denial of freewill.

Spinoza's determinism, therefore, follows logically from his conception of the divine nature. God has neither understanding nor will, both terms are meaningless when attributed to infinite being. The divine substance is like the water of ocean, to use his favourite simile. The storms and tempests which arise and cease, the waves which move restlessly over its surface, are simply fleeting modes of its existence. In like manner our human lives and all the variety, change, and profusion of Nature are modes of the divine substance. From God we come and to God we return.

CHAPTER VII

LEIBNIZ'S FINALISM

The reinstatement of final causes by Leibniz and its consequence in the doctrine of human freewill was neither an appeal to facts nor a psychological analysis of human nature. Like Spinoza's determinism it was a logical outcome of a conception of substance. It is of no use to appeal to facts to decide a metaphysical issue, for all facts may be illusions. Spinoza held our belief in final causes to be an illusion, and Leibniz held our belief in the materiality of external objects to be a result of confused perception. The materiality of the universe he considered to be an aspect of its reality, a mass effect of the individual activities which really constitute it. He illustrated his meaning by comparing our general massive view of the world to our experience of hearing the sound of the surf on the seashore. It is perceived as one massive sound, whereas we know it to consist of innumerable individual waves which we should easily distinguish were our powers of discrimination heightened.

Leibniz held that there is only one substance, but he differed from Spinoza in his view of its essential nature. Substance is essentially active, it is force or power, it is not a substratum passively supporting qualities. His illustration is the bent bow, a force which actualizes itself when all external obstacles are removed. Substance exists first as potentiality, then as actualization. All activity is individual, and the typical form of it is in the living world. But in the living world there are minds and bodies; is there, then, one substance of the mind, another of the body? The body, said Leibniz, only differs from the mind in being composite, while the mind is simple; but this composite body really itself consists of minds which are simple. Every real thing is ultimately a simple individual mind. Thus an organism is really an assemblage of simple unit active forces, each living its own life, but so related as to form a common life of the organism as a whole. He called these simple constituents of the world monads, meaning that they were indivisible, just as the physicists had supposed the atoms of matter to be indivisible. Unlike atoms, however, monads are not bits of stuff, but active forces. It is a difficult thought to those who learn about it for the first time, because it takes a quite different view of the nature of the physical world to what ordinary experience has accustomed us, but it is worth understanding, for many philosophers and men of science are coming to think it true.

Leibniz had his theory of the way in which this plurality of independent, individual, active forces is combined to form a world, and also of the relation of the natural world to the moral world, or, in his own words, how by way of nature we are led to grace. He called it his "New System of the Pre-established Harmony." It rested on his conception of the omniscience and omnipotence of God. The theory is of great interest in the history of philosophy, but it is unnecessary to expound it here, for it is irrelevant to the special problem of freewill.

What is important for us to see is that if Leibniz is right in going to the living world instead of to the material world for his conception of substance as force, then final causes enter as essential factors into its definition. Not only must we think of God, the supreme mind or monad, as having understanding and will, but also these qualities, present in God in the most eminent degree, must be present in the lowliest monad in some degree. For the monads are emanations of the divinity, and the work of God in creation was the harmonizing of their activities.

It is this idea of a universe constituted of substantive, active individuals to which Leibniz has given precision. The activity of the monad, he tells us, consists in perception and in appetition. Perception corresponds to understanding, and appetition to will. In the lowest monads, perception is confused and appetition is blind, and there is no consciousness. This is as much as to say that wherever there is activity it is informed and purposive in however low a degree. In the higher or rational monads, in which there is reflection and self-consciousness, perception is understanding, and appetition is will in the full meaning of knowledge and desire.

If this metaphysical doctrine be true it will be seen that the determinist position of Spinoza is completely reversed. The problem of freewill is no longer where to find a place for freedom in a world in which every occurrence is completely bound up in the chain of necessary causation. The problem is how freedom generates necessity. Freedom is present *in fact* and *in right* when substance is conceived as activity. Freedom is an essential factor in the idea of the force of the bent bow, which will expend itself when released from the external obstruction. How can that freedom be used to direct the arrow to its mark?

How, then, does Leibniz meet the dilemma of Buridan's ass? If the conditions are fulfilled, he will say, undoubtedly the animal must starve, but are we not falling into contradiction in imagining the fulfilment of the conditions? We are implying that the ass is changed from a living subject of experience into a pure mechanism. It will starve indeed, but only because it is already by the hypothesis lifeless. If, however, we suppose the ass to be an active individual subject of experience, then all impressions upon it are having their effect in its perceptions. These impressions may be minute, the ass's perceptions may be infinitely small, and it may be unconscious of them, but if it is a living activity its perception is incessant.

The equilibrium, therefore, would have to be, not an equilibrium of external incitements, but an equilibrium of perceptions and appetitions. The logical dilemma cannot be propounded in such terms. "There are those," says Leibniz, "who speak of liberty without ever considering these insensible impressions, which are always inclining the balance; they imagine in moral actions a complete indifference, like that of Buridan's ass equidistant between the two trusses of hay."

CHAPTER VIII

TRANSITION TO THE MODERN PROBLEM

The comparison of the metaphysical principles of Spinoza and Leibniz show us that the world presents itself to our intellectual apprehension under two opposite and different aspects: a mechanistic aspect in which everything is completely determined, in which every event is the inevitable outcome of causes which have produced an effect as a necessary consequence of their nature; and a finalistic aspect in which all action is motivated, is the accomplishment of desire, is informed by a purpose or end, is ideally represented before realization. In the first aspect the causal chain stretches back from the present into the indefinite past; in the second the causal chain spreads outward into the indefinite future. Accordingly, when the question of freewill is argued, the determinist's conclusion inevitably follows, whichever set of conditioning causes be taken. Whether we argue from efficient or final causes, the conclusion is already implicit in the premises, and the freewill controversy seems to the modern world as arid as the even-more famous medieval dispute between realist and nominalist concerning universals.

Yet in the metaphysical conception of Leibniz, purely intellectualist as his system is, there emerges a new idea, full of significance, and destined to give a new orientation to the freewill problem. It is the idea that life is something *sui generis*, the reality which originates, which creates. Leibniz named his idea *vis viva*, and we now speak of his doctrine as the old vitalism. It is old only in the meaning that it preceded the rise of the biological sciences, and therefore is a purely metaphysical concept. The new vitalism which is opposed to mechanism is an interpretative principle of the scientific theory of biological evolution.

Before passing from the old form to the new form of the freewill problem let us sum up the results. Freewill is the fact of experience that in all our consciously performed or voluntary actions we feel we are exercising a choice. We distinguish between understanding and will. The understanding is our capacity of informing ourselves in regard to the actions we are performing. The will is the power of carrying into effect or realizing our purposes in action. The freedom of the will may have a negative or a positive meaning. It has a negative meaning when it implies only that the power of acting is unhindered and unobstructed. It has a positive meaning when it implies the power of choice of alternatives. The freewill controversy was in regard to the choice of alternatives. The dilemma was the supposed case in which alternatives are equally attractive. Would the will in this case be poised in equilibrium, or had it the power to determine itself? So posited, the problem was insoluble, for if the alternatives determine the action there is no choice, and if there is no choice there is no freewill.

In religion the controversy raged round the interpretation of the essential tenet of the Christian gospel of salvation, the act of faith by which the redeemed are justified. In philosophy it concerned itself with the nature of causality. Are purpose and finality an illusion, mere appearance, due to the deep ignorance in which man is born of the real causes of his existence and the instinct implanted in him by nature to preserve his being? Is man, in short, the outcome of a blind necessity, or is his destiny in any intelligible meaning in his own control? On the one hand, it seemed impossible to deny that all human actions are wholly dependent for their realization on efficient causes; on the other hand, without finality it seemed impossible to give any meaning to organic activity or any interpretation of the principle of individuality.

Modern science has not solved the problem. It has changed its form and shifted the interest. The problem in its present form is whether life can be conceived as an emergence from materiality, or whether it is a free creative activity.

CHAPTER IX

THE EVOLUTION HYPOTHESIS AND THE FREEWILL PROBLEM

THE theory of Evolution gives to the present period of natural science its most characteristic feature. The evolution idea is a very old speculation and may be found under some form in every age of active philosophical inquiry, but in the nineteenth century it suddenly, almost dramatically, assumed a strategic position of fundamental importance alike in philosophy and in science. What gave it special prominence in popular thought was the extraordinary success of Darwin's *Origin of Species*. The interest of the whole intellectual world focussed itself on the problem of life, the nature and origin of living activity, the genesis of the various forms in which it has found embodiment. Like all great movements of human thought, the actual epiphany of the evolution hypothesis was the climax of a long anticipation, but with it has come a revolution in ideas affecting every branch of human spiritual activity.

The theory of evolution has changed the form and orientated in a new direction the interest of the freewill problem. Before the coming of evolution, reason, in the forms of understanding and will, seemed the prerogative of man, raising him above animality. Reason was generally interpreted as that image of his maker in which, according to the accepted theory of creation, man had been formed, and in right of which he was assigned his predominant position in the world. It was natural to suppose that man had been created perfect and innocent, and it was natural to account for physical and moral evil as the consequence of transgression. The religious and philosophical problem of freedom and necessity was always conceived in terms of this belief even by those who were critical or sceptical in regard to the record or tradition. The evolution hypothesis has brought a complete change. The old belief is discredited. With the advance of science the first tentative suggestion of the possibility of a natural account of man's origin by an evolution from lower forms soon became a necessity, and it has since received such striking and increasing confirmation that the recent attempt of fundamentalists in some of the United States of America to enforce by legislation a return to the old theory, in the supposed interest of religion, has seemed to an enlightened world theoretical irrationality and practical folly.

The change in the freewill problem is, then, that instead of being an abstract and subjective problem, as it was under the older form, it is now concrete and objective. It still represents a radical divergence of rival principles of interpretation. It is, however, no longer primarily a personal, religious and ethical consideration; it is now a fundamental metaphysical question. The universe presents to the scientific inquirer two aspects, the aspect of a materiality in which everything is mechanistically determined and mathematically commensurable, and the aspect of a spiritual or vital energy availing itself of the opportunities offered to it of free expression, creating individual forms in which to exercise special functions or realize purposed designs. On the one hand, we seem to have in the phenomenon of *matter* the fact of a rigid determinism, a pure necessity; on the other, in the phenomenon of *life*, the fact of freedom, spontaneity, a power of directing and controlling matter for the achievement of ends. In life there seems to be a potentiality which transcends its actuality; in matter an actuality which circumscribes its potentiality. How are these two opposite aspects to be reconciled? How are matter and life to be related? How is the freedom of the one consistent with the necessity of the other? The old free-will problem is still with us, but in this impersonal form.

There are two problems of modern science in which the principle of evolution is the issue: one is the problem of biological evolution, the genesis of present living species by evolution from older and presumably simpler forms; the other is the problem of cosmic evolution, the world history which has resulted in the present conformation of the physical universe. The idea of cosmic evolution arose with the formulation of the nebular hypothesis, and has become of increasing interest and scientific importance with the discovery of the electrical constitution of matter, with the new principle of relativity, and the theory of light quanta. But, comparatively speaking, cosmic evolution was a late arrival, and its coming produced nothing like the consternation and disturbance in religious and ethical conceptions which biological evolution occasioned. The attempt is being made in recent philosophy to subsume biological evolution under the one embracing principle of cosmic evolution, and to formulate a new principle of emergence. In fact, however, the principles of biological evolution and of cosmic evolution are entirely different.

Biological evolution presented to science a special problem. It was not concerned with the nature or origin of living activity, but solely with the means by which the variety in specific living forms had been brought about. Matter and life were accepted as facts. The material world was conceived as permanent, in the meaning that its varying appearances could all be accounted for as mechanical effects of movement in space and time. All changes which matter undergoes are reversible, so that any past state of any material thing is theoretically recoverable. Life is entirely different. The forms of living activity are not fixed, but for ever varying, and the changes are irreversible. It seemed, indeed, to the scientific observer that new species must be arising continually before his eyes. Such was the problem of biological evolution when Darwin put forward in his *Origin of Species* a particular hypothesis which at once secured the adhesion of the scientific world. Its peculiar attraction was that it offered a purely mechanistic interpretation of vital phenomena, an interpretation which could dispense with purposes, final causes, ends, and designs; in fact, with anything suggestive of spiritual agency within or without the process itself.

Darwin had observed that variations are artificially produced by agriculturists and breeders of domesticated stock by selection, and this observation suggested to him the idea that variations produced in the natural course may also be subject to a selection which is natural. He then directed his attention to certain facts in the living world which would operate as a selection. Every form of living creature has a power of reproduction and reproduces offspring far in excess of the food supply. There is, therefore, a struggle for existence, not necessarily an internecine conflict, but a competition for the food supply. Those shut out must perish, though not necessarily in vain, as they may be the food of other species. In such a struggle for existence we may expect that in the long run the fittest will survive. Any variation, consequently, which has survival value will tend to be perpetuated by a natural selection, for it is the survivors who are the parents of the new generation. Moreover, the environment is changing continually and altering the conditions of life; those, therefore, best adapted or most adaptable to the altered condition will be the better able to survive. In this way we may suppose there is continually at work throughout the living world a natural selection. It has not, indeed, produced the present fauna and flora of the earth, but it has determined, by accumulating slight variations, their actual form. We cannot suppose there is an exception when we come to man. Man is closely allied to the great apes in his organization, and we cannot doubt he owes his position to a natural selection.

Such is the theory which has transformed the free-will problem. It is true that evolution did not claim to answer the question of the origin of life; it was not a genetic theory. Also it did not offer any theory concerning the freedom and responsibility which man seems to possess, by virtue of his self-consciousness, in the form of understanding and will. All it could say in regard to the spiritual attainments of man was that, as matter of fact, mind and consciousness accompany the higher forms of material organization, which are the outcome of a slow age-long evolution of structure. These functions are never detached from the organic structure, and they may be no more than a halo or glow. What we are able to say with confidence, and with a probability amounting almost to certainty, is that, given the existence of a complicated, chemically unstable molecule, protoplasm, stabilized by its acquired functions of nutrition and reproduction, we can account by purely natural mechanism for all its transformations up to the appearance of man. To hold this view and still argue that man might be free and responsible through the possession of an immortal soul, somehow imparted to him, could give no mental satisfaction. If human activities are explicable by simple natural mechanism, why introduce occult causes which are incomprehensible?

The first effect, therefore, of the triumph of the evolution hypothesis was the confidence that every problem of genesis whatever, whether it be of nature or of mind, would yield before mechanistic interpretation. Once again it appeared to be demonstrated in philosophy that final causes are illusion.

CHAPTER X

THE VITALISTIC CONCEPTION OF EVOLUTION

THE old and favourite theistic argument based on the evidence of design in nature has lost its hold on the modern world. Neither nature nor mind presents to science to-day the appearance of finality or in any aspect of them support its principle. We can point to no fact which indicates purpose, nor, indeed, are there any problems in the interpretation of experience which would be elucidated by the hypothesis that the life force which is finding expression in evolution is a spirit infinite in comprehension whose goodwill is informed by understanding, who is working for the realization of an end, planned in idea with a view to its being brought into existence. Were the reinstatement of final causes in the scientific conceptions of biology simply the reintroduction of animistic ideas, long outworn and discredited, it would hardly deserve rational consideration. The vitalistic conception of evolution is altogether different. In holding that final causes are not illusory, it is claiming to interpret a purely scientific principle.

The inert material world is distinguished by its pure passivity. In the words of Newton's first law of motion, the law of inertia, every material thing remains in the state in which it is, whether at rest or in movement, until changed by some external force. The living world, on the other hand, is constituted of individual, organic, self-originating, self-centred, self-referred activities. A living thing behaves in a directly opposite way to an inert thing. While the inert thing is passive to all external influences, moves if it be moved, stops if it be stopped, while all that happens to it can be exactly determined by calculating the forces acting on it, a living thing responds to external influences with an internal force which it controls. Mechanical movement can be completely expressed in terms of efficient causation, activity cannot. Activity is not mechanical, but dynamical. It is only explicable in terms of force, not in terms of movement. A living thing, individual and responsive, is purposive. Living activity is always determined by final causes, however dependent it may be on efficient causes for the means to accomplish its end. Consequently it is impossible to have a science of biology and treat final causes as illusory. The principle may be illustrated abundantly. Take any living thing—a plant, a microbe, an animal —will the most exhaustive description of the present and past disposition of its component chemical and physical elements serve to define it? Clearly not.

Scientifically it is defined in terms of structure and function, and structure and function are alike meaningless if we reject purposes, ends, final causes as illusory.

The theory of evolution rationalizes the process by which any reality, inert or living in its origin, has become varied and diversified in its history. The two realities which science takes as substantial, and regards as the identities underlying the multiplicity and diversity of their forms, are matter and life. Evolution presupposes that both have developed in a historical time process from an earlier simplicity to a later complexity. Matter and life are respectively the subject-matter of the two great divisions of the natural sciences, the physical and the biological, but they are in no sense autonomous. On the contrary, they appear to be, and are assumed by science to be, in a definite relation of interdependence. Matter is the condition of life, and life derives from matter its efficiency. Yet they have no common factor. Matter is quantitatively identical throughout all changes of form and is conceived as self-existent and indestructible. Life is qualitatively identical and quantitatively variable, dependent on pre-existing matter and destructible. Science assumes that matter existed when as yet there was no life and that it will exist when the conditions of the possibility of life are absent. We cannot conceive living activity in the absence of matter. And this remains true though in recent science a complete revolution has taken place in the conception of the essential characteristics of material substance. Matter is no longer thought of as a substratum of qualities, and atoms are no longer imagined as indestructible bits of extended stuff. The picture which now comes before us when we imagine the ultimate constitution of the material world is of specks or units of electricity, existing either in atomic systems in which the negative charges of the electrons are balanced by the positive charges of the protons, or as free radiating pulsations or quanta propagated in waves through the spatial universe. When we speak of life and matter, therefore, we are no longer able to compare them as two independent substances in the manner of the old dualism of thought and extension. The evolution of life has taken place in a period which is an almost insignificant part of the period of the cosmic evolution which has brought the earth into its present condition, and there is every reason to believe that cosmic evolution will continue to change this planet long after the conditions which make life possible upon it have ceased. All this the vitalist admits, but from this point vitalist and mechanist differ, alike in their conception of the nature of life and of the process of its evolution. The mechanistic view is that life is a phenomenon of the material substance named protoplasm, an unstable carbon compound formed under at present unknown chemical and physical conditions. This protoplasm, once formed, exhibited the peculiar characteristics of organization and living activity, and, by adaptation to changes in the environment, has become involved in an ascending evolution, the outcome of which is the existing flora and fauna of the world. The evolution is a process still in being, and is explained by the mechanical actions and reactions between the living beings and the environment.

The vitalistic view is that the kind of activity which is exhibited by living beings—retention of the past, permanence of type, purposive organization, subservience of structure to function—cannot be interpreted by the mechanistic principle and require us to conceive a vital principle. Life appears as a force or potentiality, working against obstacles, availing itself of opportunities, creating the forms in which it finds expression. Life is the push or impetus of a force seeking an outlet for its expression. It is one in origin and identical in its various manifestations. It appears to have availed itself of the instability of certain carbon compounds to obtain its foothold on the surface of our planet, where it avails itself of the solar energy, and it has produced in its ascending evolution the variety and hierarchy of living forms. It will be seen, therefore, that the vitalist principle is an affirmation of the reality of freedom as opposed to the view that freedom is pure illusion.

An illustration may serve to bring into relief the contrast of the two problems, life and matter, and the impossibility of invoking the same principle in the interpretation of each. When America was discovered in the fifteenth century, and when the nature of the discovery was understood by the circumnavigation of the world, a new, and till then unimagined, task was presented to science. The new continent occupied a vast portion of the spherical surface between the farthest known parts of the world towards the east and the farthest known parts towards the west. The continent had been unknown by the old world in the most absolute sense during the whole historic period of the human race. The new world was continuous with the old world in its physical features, the waves broke on its shores, mountains, plains, rivers, clouds, rain, snow, and ice produced physical phenomena identical with those already known; but also it was inhabited by living forms, plant and animal, here and there of unknown kinds, yet nowhere of unfamiliar shapes. Human beings identical in organization and even resembling the old world in their institutions and culture were found. Consider now the striking difference of the problem offered to science by the physical features of the continent and by the life upon it. The forces acting there were sufficient to account for the physical conformation, but how was the life to be accounted for? So far as the physical features were concerned there need have been no connection between the new and the old at any time, but could life be supposed to have sprung into existence there because the conditions of its development were favourable? It is unthinkable, and we know that life must have been introduced. The scientific inquirer had, therefore, to discover by what possible means in the unknown, unrecorded, prehistoric period continental connection could have existed favouring a migration of vegetable, animal, and human life. Mechanism will interpret sea and land, it will not interpret the life upon it.

CHAPTER XI

THE FREEDOM ESSENTIAL TO LIFE

Causality, the relation of every fact to some other fact as the cause of which it is the effect, has occupied a large place in the attention of philosophers during the modern period which began with the scientific work of Galileo and with the new method of Descartes. The chief division has been between those who hold it to be a real relation and those who hold it to be ideal. According to one view causal connection is a subjective requirement of the mind; according to the opposite view, it is a real character of the objects we think of as in that relation. The application of the law of causality is universal. It is one of the fundamental principles of experience. In affirming anything as fact we assume a sufficient reason for its existence, a reason why, if it is a material object, it is thus and not otherwise, if it is an event, why it happened then and in the manner it did, and this reason we call cause and the thing or event effect. As a consequence of this universal way of thinking, every event, when we reflect on it, takes on itself the character of necessity. It could not have been other than it was. But this universal way of thinking does not enable us to decide whether the necessity is a subjective condition of our thinking or an objective condition of the thing thought of. There is a distinction, however, which we make even in our ordinary way of speaking of causes. We use the same word "cause" for two different kinds of relation. There are causes which seem to us to belong to the nature of things, and causes which belong not to the nature of things, but to the voluntary acts of conscious agents. Voluntary acts do not seem necessary, or, if they are necessary, it is in a different meaning of necessity. Thus, let us suppose there is a forest conflagration, we say it was caused by the inflammable nature of the material, by the dryness of the stubble, and by the high wind which spread the flames, and also we say it was caused by the careless person who, after lighting his cigarette, threw away the glowing match. In the case of the voluntary act there is a certain factor of freedom together with the necessity, a power in the agent of knowledge, as it were, to avail himself of the necessity in nature. The problem of freedom and necessity in regard to the principle of causality is, therefore, whether in any ultimately intelligible meaning we can affirm free causes, causes free from necessity, causes which produce their effect by directing and controlling the really efficient causes which we refer to the nature of the physical world. Is there a real distinction between the cause of the conflagration in the act of a conscious agent and its cause in the nature and circumstances of the objects?

The most famous argument about causality is that of David Hume (1711-1776). Hume set himself the task of inquiring what is the origin of our idea of the necessary connection between matters of fact which makes us relate them as causes and effects. He came to the conclusion that the whole idea of a necessary connection between matters of fact is an illusion. All our knowledge comes from experience, and experience is a stream of impressions and ideas succeeding one another in a linear order. We associate our ideas. In every new experience there is with the present impression the memory or fading impressions of the past, and we can compare the present impression with the past which may have resembled it; and this revival of past impressions brings with it not only a revival of *resemblances*, but also of ideas that were *contiguous* in the past experience. In this way we objectify our experience, and in place of the impressions and ideas, which are all we possess, we come to think of a world made up of objects which are the source or cause of our sense impressions. But however attentively we examine and analyze our experience we never find in any matter of fact anything which we can call the cause of another matter of fact. This applies to both kinds of cause, and, indeed, to the conception of causal connection itself. Suppose, for example, I experience for the first time the matter of fact which I call a box of matches, and strike one of the matches on the box, I then have the new matter of fact, the fire, or burning. The two facts are quite different, the match and the fire. The most exhaustive analysis of the impression "match" will not give me "cause of fire," and the most exhaustive examination of the impression "fire" will not give me "effect of match." The fire is a new and different fact which I can only know by experiencing it. Cause and effect are quite different matters of fact, and there is nothing in the one to lead me to expect the other. Where, then, do I get the idea of their necessary connection, the idea of causality? If it is not to be discovered in the matters of fact it must be in my way of thinking about them. Hume's conclusion is that there is no such thing as causality, no connection between the facts which constitute experience; there is no more than a *belief* engendered in us by *custom*. All we observe is an invariable sequence between "striking the match" and "bursting into flame," so that when we want to obtain fire we strike a match and believe that the fire will follow. This argument is known as Hume's scepticism. It gave rise to the greatest dilemma in the history of modern philosophy. If Hume is right it seems that all science must be illusion, for science is dependent on the idea of causality. But if all knowledge is derived from experience Hume is right, for experience cannot transcend experience. It is true that some philosophers have argued that physical science can accept this sceptical conclusion of Hume and dispense with the idea of causality. The argument is more ingenuous than convincing, and is generally found to depend on the ambiguity in the use of the term "cause," which may mean either physical determination or voluntary action.

It is an open question in philosophy to-day whether there is any effective way of meeting the scepticism of Hume. The most thorough and complete attempt to overcome the difficulty was that of Kant in the famous *Critique of Pure Reason*. This was to offer a new theory of knowledge. He described it as a transcendental theory because, while he held that knowledge has reference only to possible experience, yet it is not directly derived from experience, as Hume had assumed it must be. Causality, in Kant's theory, is a category of the understanding, and the mind is a kind of frame in which experience is shaped. Causality is one of the frames. Knowledge accordingly, Kant held, has two factors—experience, which supplies the matter or content, and mind, which supplies the form.

This was the problem of causality before the theory of evolution. With that theory has come an entirely new presentment. The continuity of living process in the individual, and also the historical continuity in the evolution of species, must be conceived on an entirely different model to that which serves us for the conception of physical causality. In the case of physical causality the continuity between the cause and the effect is a mathematical concept, and conditioned by space and time. Thus, when we say that the fire caused the destruction of the forest, we mean, when our elliptical statement is filled out, that we can take two states of the physical fact which we call the forest, the state before the conflagration, when it is flourishing, and the state after the conflagration, when it is consumed; and these are two states of one and the same thing spatially continuous and temporally successive. The fire which has changed the form has not created or annihilated the substance. The fire which we call the cause only represents the change of form in a substance which is identical, and the chemist and physicist can give us the exact formula for the change in equations which completely account for it. In so far as the change supposes power, or force, or efficiency—in this case the fire—this is conceived quantitatively as energy, and in the concept of energy there is the assumption of complete equivalence of action and reaction. In short, physical causality is mathematical in its conception throughout.

Living activity will not fall within this scheme of physical causality. There is a causality implied in living action which is not mathematical. A living thing is historically continuous, and historical continuity is different in kind from mathematical continuity. Take, for example, two states of a living individual, "the infant muling and puking in its nurse's arms" and "the lean and slippered pantaloon," the historical continuity, which constitutes the personal identity of the two, does not depend on any idea of mathematical equivalence, and they cannot be equated mathematically, however wide the range we allow to mathematics. Yet in living activity we cannot dispense with the concept of causality, for in living organization, as in inert materialization, the present is conditioned by the past and conditions the future. Into the causality of the living, however, there enters an essential factor, purpose, which is not only absent from the physical principle, but even reverses it. Living causality is purposive, and the essential factor in purpose is freedom, not in the negative meaning of absence of restraint, but in the positive meaning of power to create. In living activity there is the continuous bringing into existence of something new, something not only unforeseen but unforeseeable. When we speak of the freedom of life we do not mean it is free in the sense that the water is free to fall over Niagara, we mean that life is creative.

Let us, then, compare these two kinds of causality—that of matter and that of life. An inert thing leaves its past behind it and outside it. What it is at any moment it is, and what it was it no longer is. A living being, on the other hand, carries its past in its present and is continuously forming its future. The causality of a physical thing is an external relation to some other thing. A cause ceases to exist as cause when it becomes effect. In the living world past, present, and future exist together. A living creature holds the past, retains the past within itself while it is acting forward into the future, moving to ever new creation. We can calculate exactly what the future state of a material thing will be if we can calculate the forces acting on it in the present. We cannot calculate what a living thing will be because the forces changing it are not detached from it nor detachable. This is not only true of the higher forms of living activity, of beings possessed of reflective consciousness and guiding their life by reason; it is true of living activity in however humble a form, even when there is no appearance of consciousness or reasoning. Consider the living action of a deciduous tree in the Temperate Zone. It adapts itself to the conditions of its environment, not by responding to the immediate influences which affect it, but by preparing in advance for the seasonal changes. It does not wait till winter affects it, and then respond to the lower temperature by devising a protection for its tender buds against frost. It sheds its leaves and forms its buds in anticipation. The future, the not yet existing winter, is acting on it in the present. This "purposiveness" is not illusion. In whatever way we interpret it the contrast with an inert thing is complete. Taking facts, then, to be what they appear, we must say that wherever there is life there is purposiveness, and that this purposiveness implies freedom from the necessity which rules in the physical world, and also that this freedom is capable of positive use. We shall at once recognize, however, that this freedom, present everywhere in the living world, varies greatly in amount, and also differs radically in its mode of working, in the manifold forms of living activity. The fundamental characteristic of free action is that it has no power to alter the past, which is its action accomplished, that its activity is in the present and its effectiveness in the future. The present action in forming itself is determining the past, which then appears irrevocable, accomplished fact. This past is not left behind but carried on in a present which moves onward continually into a future yet unformed and open before it.

This character of living action has suggested to our great contemporary philosopher, Bergson, a solution of the old problem of freewill, the puzzle of Buridan's ass. Freewill does, indeed, he thinks, give rise to an illusion, not, as always supposed, an illusion of freedom, but an illusion of necessity. In his classical work, *Time and Freewill,* Bergson has given a penetrating analysis of the freewill difficulty, and in a brilliantly suggestive discussion has shown how the illusion of a *vis a tergo,* a force determining living action in advance of its accomplishment, arises naturally and even inevitably. We are, he says, like everything which lives, fixed in an attitude of attention to life. From moment to moment as we move forward in time we are making ourselves. We swell with our past like the snowball grows as it rolls. At every moment of activity a choice has to be made, and that choice determines not merely some outward decision, but our very self. Into that determination of the self in the moment of active decision all the past enters, on it converges the whole of our being. However unconscious we may be of this past, we carry it with us; it is the substance of our individual being. Then, as we look back on our accomplished action, the past presents itself to us as a causal chain, each action seems to have been determined by the inevitable influences which preceded it. These influences now appear as external to us, as a necessity which had been imposed on us from without. But we ourselves are this past, freely accomplishing in the present what, when accomplished, will take on this aspect of necessity. Hence arises the illusion. We suppose that anyone, possessed of knowledge of all the influences acting on us at the moment of our acting, might know beforehand and be able to foretell our action, and this seems inconsistent with freedom. But for such knowledge to be possible it would have to be complete up to the actual moment of the action, and such complete knowledge would mean that the difference between knower and doer of the action would vanish. The knower would be only an ideal replica of ourself in the doing. He asks us to suppose an individual, Peter, making a momentous decision. Could another individual, Paul, possessed of complete knowledge of the motives determining Peter, tell beforehand what decision Peter will make? Yes, he replies; such knowledge is theoretically possible, and, were it practicable, Paul would know what presumably Peter does not know—the decision before it passes into act. But what does such knowledge imply? Nothing less than knowledge of the whole past of Peter, complete and inclusive, right up to the actual moment of decision—the complete life of Peter as it is determining him in the moment of acting. What is this but to say that to know Peter is, in effect, to be Peter?

Life, then, presents itself to us under two aspects. In its activity it is making itself, creating new forms in which it finds expression, accumulating its past in its present activity, carrying forward its past as it moves forward into the open future. This is the aspect of freedom. It has another aspect. The past which lies behind it is irrevocable. It is a record of its accomplishment from moment to moment. It is historically continuous, every succeeding moment the outcome of the past. This is its materiality, the aspect of necessity.

We may see, therefore, how the knowledge we have acquired of the living world has brought a profounder problem to light. Surveying the natural world in all its extent, we are asking ourselves what is the primordial principle in the universe? Is the physical reality the expression of a creative force? Is the universe a life which is making itself? Is freedom at the heart of things and necessity an aspect of the already made? Or is freedom an illusion? Is it only an aspect of a world whose future is bound up in the same necessity which makes its past unalterable? Both these views have their expression in contemporary philosophy. One is the theory of "creative" evolution, the other is the theory which has adopted the descriptive term "emergent."

CHAPTER XII

LIFE AND MATTER

Two factors enter into all our knowledge of reality—one subjective, the other objective. Knowledge depends upon the mind which knows and on the world which is known. Theories of knowledge, realisms and idealisms, are divided as to the importance and particular significance they assign to one factor or the other. Realisms tend to restrict the mental factor to a simple act of knowing, an act which might theoretically be exercised by any object on another present with it were the object endowed with the power of contemplation. Idealisms, on the other hand, tend to attribute to the mind not only the initiation of knowledge by its act, but the elaboration of knowledge by its constructive interpretation of experience, including within its active construction even the object it externalizes. Setting aside all theories of knowledge, however, there are certain facts of experience relevant to the relation of knowledge to reality which are plain to ordinary reflection. It is essential to understand these in order to appreciate the rival theories of life and matter.

In the first place, all our knowledge of the world around us is in the form of sense imagery—visual images, auditory images, tactile images, and the like. Yet in nature as science represents it there are no images. Consider, for example, the visual images which are the basis of our knowledge of the visible objects outside us—that is, the images of the object projected on our retina. They are formed by the convergence of light rays, but there is no convergence of light rays in nature. Physical science formulates the laws of refraction and reflection, but the convergence which produces in us an image of an object is not anything which the object does or which the light rays do or can do; it is effected by the mechanism of the eye. The same is true of sound and of all the objects of the other senses. We have, then, this important fact: that the reality of the world, as science teaches us to think of it, consists of the radiating forces we are aware of as light, sound, heat; but before these forces can form images of objects they must converge. In nature they do not converge; the convergence is effected, not by the radiating forces, not by the objects, but by the sense organs of the living being.

The second important fact is that our sense organs are limited. This limitation has nothing corresponding to it in nature; it is effected by the organism, responding apparently to what is a necessity of its own existence. Thus our sense organs are selective, and the reality we are conscious of or can know is a selection. In vision, for example, we are sensible only to a very minute range of the spectrum. We see clearly in the yellow centre of this range; we have no vision below the red or beyond the violet. Suppose we were not so limited, but were able to see in other parts of the spectrum, then the whole aspect of the material world to us would be changed, while nothing in nature would be altered at all. Were we able to see below the red end of the range, then every object which was not in a temperature equilibrium with the environment would lose its clear outline and appear surrounded with a luminous nebulosity. Were we able to see beyond the violet, then light emanations would be visible from chemical substances like mercury. The whole appearance of the external world might change unrecognizably by an insignificant shift of the selection exercised by our sense organs.

These facts are sufficient to show that our knowledge is partial and disconnected. It is like our view of a city when we look down on it by night from a height. We behold only the fairyland of lights, and all the busy life of the city is obliterated in darkness. Yet though our sense experience is fragmentary and disconnected, when compared with the scientific conception of the physical world revealed to us in sense knowledge, experience itself is not fragmentary. Knowledge itself is continuous, and experience is a whole and indivisible, however fragmentary the points of attachment with reality. Also reality must be thought of as continuous; to conceive actual blanks in it, real gaps, would be the death of science. We have, therefore, two continuities: the continuity of sense experience and the continuity of nature as science conceives it. We must say, then, that knowledge has two forms, a direct awareness of sense imagery and a conceptual interpretation of sense experience.

Let us now apply this conclusion to the particular problem which evolution has presented to philosophy, the problem of life and matter. Two great realms of real existence, the inert material world and the active living world, appear disparate. Two opposed and contradictory principles are exemplified—the principle of freedom and the principle of necessity. They are facts of the same universe, yet they stand apart from one another; there is no natural way of harmonizing them, and they are mutually irreconcilable. Consider, for example, in the living world such facts as the ascent of sap in the forest tree, the circulation of the blood in animals, and the maintenance through life of a constant temperature in the birds and mammals. These are facts of material organization, but the principle governing them is not a material principle such as we formulate for mechanics or thermodynamics. The avenue of palm-trees, which I look out upon from my window as I write, rises more than sixty feet above the pathway, and each tree puts forth its whorl of new fronds and its annual inflorescence in the same way as do the palms in the garden that are only a few feet high. The lofty tree is able to draw its sap through its sixty feet of stem with the same sureness and the same absence of effort as the five-year-old tree, although it has to overcome a force of gravity equal to two atmospheres. No one has been able to interpret in mechanistic terms the principle of this extraordinary physical work; at any rate, no one has discovered how to calculate the vital force in the simple mathematical way in which we calculate the forces in physics. Yet life is a phenomenon of material organization. It appears, moreover, as a late and precarious phenomenon in regard to matter.

It is impossible to think that these two principles, so disconcertingly antagonistic, are as disconnected in reality as they are in knowledge. They must belong to one reality, for they are in one universe, and the reason they appear so irreconcilable can only be because our outlook on reality is selective, fragmentary, and discontinuous. If, then, they are to be reconciled, it can only be by a metaphysical hypothesis, a philosophical work of ideal construction. The life which has produced us and formed us to be conscious, self-directing, organized forms of its activity seems to have practised a strict economy. It leaves no place for useless knowledge. Sense awareness is selective and governed always by the vital needs of the creature. For some vital purpose there has been evolved in us a power of detachment, a large degree of freedom in the use of reason, a capacity for speculation, and this we may use to solve our problem by framing a rational hypothesis which will stand the test of consistency.

Two hypotheses of the relation of life to matter have been put forward in contemporary philosophy. One supposes matter to be the dead deposit of life, thrown off in its process; the other supposes life to be a new quality emergent in matter as a stage or level of the physical degradation of a mass from instability to equilibrium. A third hypothesis has been advocated very ably by Joad in his interesting account of what he calls "common-sense philosophy." This is the view that we must recognize the dualism of life and matter as ultimate facts. Against this all that can be said is that dualism has never given, and probably cannot give, mental satisfaction. It cannot even be made to seem rational. Be this as it may, if we would understand the problem of freedom in its modern scientific form, we must examine the two monistic hypotheses.

CHAPTER XIII

THE THEORY OF CREATIVE EVOLUTION

THE theory that the universe is ultimately a living thing, that so far as it is composite it is composed of living things, and that materiality is an aspect of the expended energy and accomplished action of its living constituents, was put forward in the pre-evolution period by Leibniz in purely metaphysical arguments as the basis of a natural and moral philosophy. In contemporary philosophy it has been forcibly presented by Bergson as an interpretation of the evolution hypothesis. In his famous book *Creative Evolution* it is supported by arguments in the main metaphysical, yet richly illustrated in detail by scientific facts and principles. I will first explain the metaphysical principle and then deal with its scientific application.

The metaphysical principle will appear most clearly if we take an illustration. The uprush and the descent of the water in a fountain are opposite directions in a movement which is one and identical. The force which brings the water down—gravitation, as we name it—is exactly counterbalanced by the force which raises it. There is an ascending and a descending movement, and if we ask which is original, only one reply is possible. The descent is consequent on the ascent. Life and matter, according to this principle, are, in the same manner, opposite directions, an ascent and a descent in a movement. Life appears as an ascending movement, as a push or impetus or spring. All the descriptive phrases which express the familiar aspect of living activity bear witness to this concept, and our experience confirms it. Expressions like " will to live," " libido," " life-force," and even less forceful and more usual words such as " effort," " striving," " endeavour," all derive their particular intension from the idea of life as a source of energy, upward pushing, forward straining, not towards some attracting goal, but towards freedom and expansion. Against this uprush there seems a dead weight, an opposition, or, rather, an obstruction. This is matter, or materialization. This materialization, at the same time that it appears as the opposite of life, also appears as the consequence of the activity of life. Every individual form of living activity grows old and finally succumbs to the materialization which puts a term to its freedom and deadens it. And what is true of the individual is true of the universal. If instead of viewing life in its particular forms of activity we view it in its universality, as the force behind evolution; if we take the whole world within our survey, the world in space and time, and consider life as the single principle behind the multiplicity of its generic and specific forms, the conception which arises is that of a ceaseless push or upspringing, single in origin and one in its manifestation, a reality making itself, working against a limitation which is unmaking it. This is the aspect which life presents to us in the new view which the evolution theory opens out to us.

Now let us go back to the illustration of the fountain. The uprush and descent of the water were described as they appear to a disinterested spectator, but in regard to life and matter there are no disinterested spectators. To adapt our illustration to life and matter we have to imagine, not that we are outside the fountain, surveying it, but privileged to be within it and viewing the movement as an activity of which we are part. Our standpoint will be within and part of the uprush, and how will the reality then shape itself to us? Shall we not be unconscious of the uprush itself except in so far as we feel the resistance it meets, while the descending movement will appear overwhelming? The force against which we are moving will seem the great fact; the force with and in which we are moving will seem insignificant. Is it possible that it is our position within this great uprush of life which makes the living force seem weak and precarious and the descending movement overwhelming? Is it possible also that herein lies the illusion that the materiality of the universe is original and the living activity a mere contingency?

There need be no difficulty in answering if we allow ourselves to be guided by the simple rational principles which are universally recognized in science as fundamental maxims of the understanding. All change, every kind of activity, in an inert material, must be due to some influence on it or some movement imparted to it; it cannot be self-originated. Inertia is the opposite of activity, and cannot, therefore, be its source, or its condition, or its cause. From the beginning of the scientific period, even when the existence of the purely inert, or, as it was termed, material substance, seemed the evident basis of the reality of the external world, it was recognized that matter could not account for activity. This, it seemed, must have been introduced from without. Descartes, who supposed that all activity was simply mechanical movement, thought it was imparted by God to the material world and constituted the act of creation. To-day the new revolution in physics is making it simply impossible any longer to conceive matter as it used to be conceived, as indestructible stuff. In modern physics mass is not constant, it varies with velocity; and not matter, but force is now " the solid ground of nature." Though it seems, then, to our ordinary way of thinking that matter must have preceded life, for living things are dependent on it for their embodiment, yet matter itself is basically no more than a disposition of forces and its configuration is the aspect these forces assume to us.

When we turn from the abstract metaphysical aspect of the problem to consider the concrete facts of science, when we survey the living world in its present existence and in the records of its history which we read in the rocks, we see in the evolution of life an activity, the principle of which is everywhere identical, using matter to create new form, bringing about its own limitation in the forms it creates. What can we learn of the relation of life to the matter it uses? Life is selective, for there is only one kind of matter which it can use. Carbon is the only one of the chemical elements which, by the instability of its combinations in its very complex molecules, under the temperature conditions which prevail on the earth's surface, serves the purposes of life in organization. Knowing what we do of the constitution of the atomic systems, knowing that the electrical constituents are identical in all the atoms, we can say that matter itself is entirely indifferent to the purposes of life, the uses which life makes of it. The two great processes of living organisms, for example, are nutrition and reproduction, and in these life makes use of matter, but only by releasing the energy locked up in molecular systems; it is indifferent to their material basis in the atoms. Life in relation to form is creative; in relation to matter, selective.

A still more significant fact in regard to living action is the consciousness implied in it. A distinctive character of the philosophy of creative evolution is the theory that consciousness is inherent in the conception of life and inseparable from the idea of living activity. Life is consciousness *de jure* as well as *de facto*. The difference which we see in the manifold forms and countless varieties of living activity is a difference in the mode in which consciousness functions, and in the particular part it is made to play in the actions which express the life purpose. We are accustomed to classify living actions as conscious or unconscious, according to the presence or absence of deliberation and reflection. The vast majority of living actions are unconscious, performed without any appearance of awareness in the agent. Even in the higher rational animals consciousness seems confined to the narrow zone which we identify with the thinking process. Breathing, circulation, digestion, and even a large part of the actions of the voluntary muscles, in fact, all those which belong to the regular routine of the organic work, are performed unconsciously. Also by contracting habits we are always tending to throw even our deliberate actions into unconsciousness. Now, when we use the term unconsciousness to describe living processes, we do not mean that consciousness is non-existent, but only that it is suppressed or inhibited. The unconsciousness of the growing moss is not the unconsciousness of the stone to which it clings. Wherever there is living action there is consciousness, though the awareness we ascribe to consciousness be zero. In a living thing there is always the possibility of consciousness in the meaning that, were the repressing force absent or relaxed, were the inhibition inhibited, consciousness would spring up and function as of right.

When we bring the full extent of the living world within our purview, we see that consciousness and unconsciousness play an important part in the scheme. In the vegetable world consciousness is, as a rule, absent. Even there, however, the exceptions are significant, for where mobility is necessary the plant seems to act responsively like the animal. In the animal world consciousness is almost universal, differing, however, widely in extent, according to the degree in which the creature is dependent on agility and craft to secure its food. Vital and instinctive actions generally are marked by the low degree or absence of consciousness in them; intelligent actions by its intensive presence.

The more we reflect on these significant facts, the more obvious it becomes that consciousness is related to unconsciousness in the living world, as freedom to necessity. We may even go so far as to say that the amount of consciousness entering as a factor into living action measures exactly the amount of freedom at the disposal of the agent. Equally on the side of unconsciousness, the more completely in the living action consciousness is inhibited and the performance of the action stereotyped, the more is life availing itself of the necessity which is the law of inertia. In fact, freedom and necessity acquire a positive meaning in the living world.

A comprehensive view of living activity, such as the concept of evolution requires, reveals an opposition apparently fundamental within the living principle itself, an opposition inherent in its working. We may illustrate it in individual experience, for example, in the production of a work of art. In this there is first the artistic vision, the artist's intuition, which seems to spring from his inner nature and find free expression in his imagination. Then follows the desire to fix the image in a perfect and beautiful form by moulding to his will some suitable material. The work of art, now complete in marble or on canvas, will serve henceforward to recall and bring to life the artist's intuition and communicate it to others. It has gained effectiveness at the expense of freedom: it is materialized. In exactly the same way life, it would seem, can only become effective by materialization, and materialization is the very opposite of the principle of life itself. It is as though life could only make its freedom effective by devising specific forms, rigidly circumscribed, in which to find expression. Throughout the realm of life we see these two principles, completely opposed and yet mutually complementary, subserving one another. The living principle can only protect itself by materialization, and the more complete the materialization the more fixed becomes the routine, the more stereotyped the activity, the more limited, even to the point of extinction, the range of freedom.

It is from this standpoint that the comparison between instinct and intelligence becomes instructive. These modes of living activity are distinguished by the amount of freedom at the disposal of the individual. The perfect type of instinctive action is seen in the life activities of insects. Complete chains of highly differentiated, complicated, purposive actions involving consciousness are carried out, apparently by simple direct responses to environmental stimulus, with unvarying accuracy, and these embrace the whole life cycle of the individual from birth to death. In instinctive action we have, therefore, fully conscious action with the minimum of freedom, with choice and deliberation and self-determination practically non-existent. Compare intelligent action, its highest expression is in man. Man possesses the power of pausing in his actions, of inhibiting the automatic motor response to his sense stimulus, of deliberating and planning; he can construct his actions ideally before their actualization, he can choose between alternatives. The difference is not in efficiency, but in the possibility of creation, which is open to freewill.

If, then, we accept the theory of creative evolution, we are able to place the freewill problem in an entirely new light. We shall no longer argue as to whether in a world where everything is determined by its relations there exists a mysterious something or other, we know not what, which acts capriciously and upsets all calculations, or whether in rejecting such a liberty of indifference we are liable to find ourselves in the dilemma of Buridan's ass. We are now able to define freedom as creation, as the emergence of novelty, of the unforeseen and unforeseeable. Such a conception is no longer a speculation; we recognize in the life principle this creative force. When it is objected that this creation is not the bringing into existence of new matter but only the novelty of new form, we are able to appeal to science. Creation of form is materialization, and matter in itself is a pure abstraction. In this we are supported by physics. The old-time concept of an ultimate inert matter, without form and void, as the basis of reality, is now discarded as unintelligible in fact, useless as an assumption and worthless in theory. Reality is now conceived as force or energy, and force in shaping or forming itself materializes. Matter is not original, but a derivative.

CHAPTER XIV

THE THEORY OF EMERGENT EVOLUTION

EMERGENT evolution is the title which Lloyd Morgan adopted for a theory of Life and Mind, expounded in two series of Gifford Lectures. The original conception is to be found in Alexander's *Space, Time, and Deity*. It is the idea that the whole universe of matter, life, and mind is the outcome of a single process. The term "emergent," as expressive of this idea, has passed into general philosophical currency. The principle which underlies the emergent theory is

Spinozistic. It is a purely naturalistic theory and rejects idealism while avoiding the crudity of materialism.

The emergent theory is that life and mind are severally stages or levels in an evolution which, so far, at least, as the grasp of our human intelligence extends, is one and universal. We generally represent this evolution as the changes which occur in a temperature system cooling down. In this aspect evolution appears as a process of exhaustion, a running down, the passage from a maximum of instability to the state of equilibrium which, in physics, is denominated entropy. But concurrently evolution presents another aspect which is the inverse of it. This is the aspect of an ascension from primordial simplicity to an ever-increasing complexity. In the beginning, so runs the theory, was space-time, holding in simplest form the principle of movement and change, and with each change there will emerge a new range of qualities. Evolution thus has a material aspect and a spiritual aspect, and both are aspects of the one process. It is the same idea which Spinoza has expressed in his doctrine of the one substance, manifesting itself under two attributes, extension and thought.

The precise meaning and application of the word "emergence" may be made clear by an illustration. Water can be resolved by chemical analysis into two constituent elements, oxygen and hydrogen. It is, we say, a result of the union of two atoms of hydrogen with one of oxygen. These two gases account for the water completely, they are its equivalent, and when they are separated there is no remainder. But the qualities of water are not the qualities of oxygen and hydrogen, nor a combination of their qualities. The two gases might, and presumably did, exist separately while as yet water was non-existent. We may suppose them still to exist substantially and quantitatively identical in the water. But with the water have emerged new qualities. We now have the forms of cloud, river, ocean, snow, ice, vapour, together with the sense qualities we associate with these forms, sunsets, rainbows, thunderstorms. We cannot say that oxygen and hydrogen by combining have caused these forms and qualities; such a statement would be unintelligible, and yet we do not think of them as mere chance or caprice. There is nothing in what we call the cause or condition of the existence of water, the combining of the two gases, which we can equate with the new qualities. All we can say is that they are emergent, meaning that while they add to our knowledge of the wealth of the cosmos and enrich our experiences, while we can, as Spinoza would say, refer them to the divine substance, we cannot link them in that chain of necessary causation which we conceive as binding the physical world.

The case of water is only an analogy. The theory of emergent evolution is not that life and mind, like the qualities of water, are emergent qualities of some new combination of material elements; it is that evolution is a succession of epochs presenting well-marked stages or levels rather than a continuous linear development, and that with each new level there comes into play a new range of activities. Life is emergent in this richer meaning. We are to suppose that a particular stage in evolution is reached when the material conditions of life appear—that is, when the complex molecule of protoplasm is formed and able to maintain its continued existence. With this new material condition emerge the possibilities of a living evolution by the actualization of an entirely new range of activities.

It is undeniable that the evolution of living forms provides abundant illustrations of the emergent principle. For example, when the form of vertebrate structure emerged in the animal series, with it there came into existence possibilities of an enormously extended and infinitely varied range of functional activities, far in excess of anything which was immediately secured in the modification itself. Again, when man emerged there was something much more novel than the mere modification of the ape structure; there was a degree of freedom which opened to the creature the possibility of civilization, art, religion, and the whole range of activities for which these stand.

What, then, is the difference between the two theories, that of creative and that of emergent evolution?

The theory of creative evolution is the recognition of final cause or purposive activity. The concept of creation cannot be dissociated from purpose, and purpose implies the directing or controlling agency of final causes. Finality and purpose imply freedom. The theory of creative evolution is, to borrow a striking phrase of Kant, the affirmation of a "causality of freedom." Kant employed the expression in order to distinguish moral causation from natural causation; we are able to extend the application to the principle of life. Life, according to the creative theory, is neither a property of matter, nor a quality of matter, nor an activity of matter. It cannot be defined in terms of matter or of mechanical movement; it is spirit and spirituality. It is essentially a unifying and organizing principle. Life, as we know it in our ordinary experience, and as we represent it in the various modes of its activity which we observe in our terrestrial environment, is an immaterial principle availing itself of matter for the purpose of utilizing the energy of the solar radiation.

The theory of emergent evolution recognizes the facts, recognizes also the impossibility of accounting for them by natural causation, but seeks an interpretation which will avoid the introduction of final causes in any form. The theory, accordingly, is positive only in what it denies. Life and mind are presented as stages or levels in one single all-embracing cosmic process. Just as a plant in its life cycle puts forth leaves and flowers and fruit as stages in its development, and we do not appeal to natural or final causation for an interpretation of the order of their succession, but regard this succession as inherent in plant nature, so in like manner in describing life and mind as emergent levels in a cosmic evolution we represent them as produced by Nature from the exhaustless wealth of real being.

CHAPTER XV

THE KINGDOM OF MAN

WHICHEVER of the two theories of evolution we accept, the creative or the emergent theory, we find that the problem of freewill for our modern world is completely transformed. The concept of evolution has taken all meaning out of the old-world myth of the creation of man in a state of innocence, and his subsequent Fall through disobedience, with its consequences for the human race throughout all succeeding generations. With the new view of the genesis of humanity has come a change in the concept of human nature. We can no longer regard freewill as a personal problem, placing the individual in a relation of moral responsibility to a transcendent power. We shall still continue, no doubt, to formulate the problem in its old form, but we have changed its meaning essentially.

The new problem is in regard to the significance of freedom as a factor in human nature. The human intellect implies freedom of choice and can only be expressed in terms of freewill. Yet freewill may be subjective illusion. Our range of natural activity may be as rigidly fixed as that of any other animal in the evolutionary scale. Every animal species enjoys a certain degree of freedom as part of its nature. Freedom is a condition of purposive movement, and the need to go in search of food, even where no cunning is required for its capture, posits free, self-directed, self-originating activity. This natural freedom is not freewill in the moral sense; it carries no responsibility and it endows the user with no power to transcend the inner call of its appetite. Is there more than this in man? The possible answers are:

1. That in man there is a spiritual nature different in kind and transcending in value his animal nature. It manifests itself in an opposition or warfare within experience. It is the Christian view of life, expressed with peculiar force in the Pauline writings. It is by some philosophers taken as the ground of the belief in immortality. This is the answer of dualism.

2. That human nature is one and indivisible, but that man has a unique status in the animal series, inasmuch as he has been able to superpose a spiritual life on his natural life and organize a moral realm in the natural world. Man alone has a civilization, a culture, science and art, political and religious institutions. These attainments are made possible by the enfranchisement of the human will, and this enfranchisement has enabled man, while dependent on animality, to rise above it. This spiritual achievement of man is not illusion, though the belief that in this spiritual life we are transcending our animal nature may be simply the effect of our conscious reflection on our own natural activity. Freewill may not be a difference in kind between human nature and animal nature; it may be only a difference of degree. This is the answer of monism.

3. That a spiritual power, transcending all the

modes of living activity in which it is actualized, is working by human freewill towards fuller expression. This is the answer of creative evolution.

4. That freewill in man is purely a subjective illusion, inasmuch as it emerges within a cosmic process, which can only be conceived as unconscious and irrational. This is the answer of emergent evolution.

Before we consider the oppositions in these answers let us look at the fact. The present state of the living world may be described as the kingdom of man. The human animal, with its specific form and its characteristic mode of activity, has established itself as dominant and subjected all other forms and modes of activity to subservience. The present epoch of evolutionary history is the human age. This dominance of man has not been achieved by a development of brute strength, such as that which at a certain epoch seems to have secured the ascendancy of the sabre-toothed tiger; man's position is due to intellectuality, and intellectuality is a function of freedom.

Undoubtedly without the human organic structure the freedom which intellect enables man to turn to use would be impossible. The upright position has set the fore-limbs free, the converging vision has detached man from his dependence on the direct contact with the objective world which touch, taste, and smell require, the mechanisms of articulation and their correlation with the auditive sense have given man speech, the means of expression, and of ideal intercourse. All these powers are registered, as it were, in the greater brain which evolution has produced in man. When we consider the functions themselves which these cerebral structures enable man to perform, we find that all are contrived as if, so at least it appears, some spiritual or rational power were being given the means of exercise. For reason or mind seems to be availing itself of the opportunity afforded to it by the new structural form, to add an artificial set of mechanisms to those which nature has provided. Man's first great distinguishing action when he appears on the scene is the making of tools and the using them in order to render himself independent of his environment. He realizes his enfranchisement, and it leads him onward to ever greater achievement. With man a new kind of evolution begins, an evolution no longer of structure, no longer involving a modification of the organism, an evolution of mind and not of brain, of spirit, not of matter. This spiritual life is never detached from the natural life, but, while remaining one, it takes a new direction, and there is no way of accounting for the spiritual development by any system of correlation with the natural life.

Out of this power of the individual man to transcend his natural life and extend his grasp from the actual present to the past and future there has emerged a community life, a culture or civilization, forming an ideal or spiritual grouping of mankind. The phenomenon of humanity shows us, therefore, not only the transcending of natural appetites by the individual, but a transcendence of the individuals themselves, and the formation of ideals which give continuity and spiritual direction to generations and to historical epochs. These cultural ideals have, in some sense, an individual life, or at least in some measure resemble the natural conditions of the individuals who enjoy them as a heritage and contribute to their formation. Civilizations and cultural ideals have their rivalries and oppositions. Like individuals, they are born, grow old, and at last die, giving place to new ideals.

Such is the novel phenomenon which has marked the advent of man. We may say that evolution has done more than produce a form of living activity adapted to its environment; it has endowed the creature with a mode of activity which has enabled it to adapt itself to the changing conditions and rise to independence. Evolution, in providing in the human form for the exercise of freewill, has opened to man the opportunity and the power to establish his kingdom.

This kingdom of man, with its basis in the materialistic conditions of organic life, and its expression in the spiritual values superposed on brute nature, gives rise to two speculative problems in philosophy of profound significance. There is primarily a problem of the relation of the spiritual to the material, of the soul to the body, of the mind to the brain; and secondarily there is a problem of the relation of the individual to the universal, of the members of the living generation to the accumulated wealth of the spiritual heritage, of the nature of their dependence on it and the character of the addition they make to it. Let us indicate the nature of each of these problems, and we shall then be able to see the particular bearing of the four possible solutions of the freewill problem we have indicated.

There is a deep-seated conviction, amounting in some philosophers to an instinctive belief, that there must exist a perfect correlation between mind and brain, between the activities which are mechanistically determined in the material organism and the knowledge and wisdom which constitute the rational nature of the individual, between the physical mathematically measured movements of the body and the psychical dispositions and idealistic constructions of immediate consciousness and reflective thought. There can be no reasonable doubt that every state of mind has its existential concomitant in a cerebral activity, and this is sometimes thought to imply that there must be a point correspondence between the state of the brain and the thought in the mind, between the form and content of the concept and the momentary configuration of the brain. In support of this hypothesis it is pointed out that the brain is as individual as any other part of the organism, that every cell or constituent part is individual, and that the mode of every cerebral response is as characteristic of the person who owns the brain as his expression, tone of voice, bearing, emotional reaction, or any other private feature by which we identify his personality. Yet notwithstanding this conviction of the existence of point correspondence no physiologist or psychologist has ever succeeded in correlating mind and brain or suggesting a scheme which would make such correlation intelligible. The two kinds of activity, the real activity of the brain and the ideal activity of the mind, are heterogeneous. However confidently one may affirm that the brain thinks, no one can imagine how a brain conceivably can think. Suppose, for example, one could, by a heightened means of inspection, have looked into the brains of Shakespeare, Cromwell, Newton, while they were living and their minds were working, can we imagine that such inspection would have enabled one to explain the variety in their mental activity, why one wrote plays, another planned campaigns, and the other composed the *Principia Mathematica?* It is obvious at once that the kind of complex mechanisms we meet with in the organism cannot possibly interpret the mind activity or indicate its direction any more than the most perfect knowledge of the form of the letters of the alphabet would enable one to interpret the meaning of the written page. This is the first problem. In every individual there is a bodily organization and a mental organization; the mental is dependent on and conditioned by the bodily, and the bodily offers no clue by which we can correlate it with the mental.

The second problem is in some respects even more disconcerting. By the mental activity of the individuals of succeeding generations, during the span of each individual life, there is accumulated a spiritual heritage which is handed on to the future as a possession of the race. By various material contrivances the intuitions and ideas of specially gifted minds are put on record for future generations. All this heritage and the ability of humanity to enjoy it depends on the fact, apparently a contingent fact in evolutionary history, that in the mammalia, of which man is a member, the generations overlap. The whole spiritual advance of humanity has been possible because every individual member of the new generation is dependent on the preceding generation, and must undergo education and apprenticeship. The individual human being starts life physically helpless and the mind a blank. Whatever its potentiality, its ideas must be acquired. This means that each must acquire individually during the brief span of physical life all the spiritual life it will enjoy. Man brings nothing into the world, and all the spiritual possession he acquires passes with him. The new generation inherits from the past all that living evolution has contrived in the way of material structure and vital function, but nothing whatever of the spiritual achievement which mankind has produced. This spiritual heritage can only be imparted to the individual; to benefit by it he must set to work himself *de novo*. If we consider the normal duration of human life, we may say that almost a third is spent in tutelage and preparation, and the last third, though it is often a period of increasing mastery and achievement in the spiritual realm, is yet marked by decreasing physical power to final extinction and the loss of all in death.

These are the facts of life. They show that in the two relations which we feel to be the most intimate bonds uniting us to the living world our knowledge is fragmentary and its continuity broken. No doubt, we think, the connecting links are there; they are only hidden from our scrutiny. We do not know how our mind is related to our body, and we do not know how our individual lives are included in the life of humanity. All we can do is speculate, guided by such hints as our outlook on reality affords us. We see that man has, in fact, risen above the animal condition. We feel that humanity may rise to higher levels, but we are left in amazement as to how the rise has been accomplished and how further progress is possible in face of what seem to us tremendous handicaps.

This, then, is the new form of the freewill problem. In a world where everything is determined, where everything is under the iron rule of necessity, there springs up before us, as it were, this strange phenomenon, a kingdom of man, essentially a function of freedom. The animal man seems by freewill to have turned the necessity of nature to his own service. Not only has he won freedom, but he has enslaved his old master to be a subservient instrument of his will. How are we to interpret this fact?

Let us now return to the four possible solutions of our problem, possible in the meaning that each is actually expounded by some leaders in contemporary philosophy.

1. *It is possible* that there is the union of two natures in man, one a higher or spiritual nature, the other a lower or sensual nature; one linking us to a spiritual realm transcending earthly existence, the other enslaving and debasing the free spirit. This was the view of Plato, of Paul, and of Plotinus. It appears the simplest and most direct recognition of the facts, but it offers no interpretation of them. In modern philosophy it agrees with the two substance theory of Descartes. The difficulty of dualism, whether it be philosophical or scientific, is the impossibility of discovering in the opposing principles themselves anything which would support the idea of a necessary relation between them. Dualism can only be rationalized by transcending it. Philosophers have always been driven to postulate a transcendent principle in the idea of God or the Absolute. From the rational standpoint this is generally found to be removing one difficulty by introducing a greater. The theory of the

union in man of two natures is consistent with either a freewill or a determinist theory, but the logic of the situation is very decidedly on the side of determinism.

2. The vitalistic and voluntaristic theory is that the spiritual values which secure to humanity its unique status in the natural world are the simple expression of the life principle itself. The new range of activity opened to man by the actualization of his spiritual powers is a result of enfranchisement. This freedom has been secured to him by the adaptation of the organic form. Man's spiritual realm is therefore a direct expression of freewill. The life principle itself is creative. It becomes effective by restricting freedom, by contriving defensive mechanisms, by a rigid confinement or canalization of activity. It progresses by breaking through its self-formed fetters. In man it has achieved a possibility of free creation which loads humanity with responsibility.

This is the natural freewill doctrine. It has to be expressed in an imaginative form. Freewill is not a special endowment of man, but inherent in the concept of the living force itself. In man it has secured an outlet for expression, and the ideal or spiritual life of man is its expression.

These two theories have regard to our first problem, the union in the individual of a material and spiritual nature, of mind and body. The third and fourth refer to our second problem, the material continuity and the spiritual discontinuity of the generations of individuals.

3. In regard to the living principle itself, there is the theory that it is essentially and in all its manifestations a spiritual agency. What we call mind is not an additional or acquired character of a living thing. Life and consciousness are not two different things. Life is conscious in the primary concept of it. We recognize in life the spiritual force which is the original spring of organic evolution, and the past and

present forms of living creatures are the outcome of its purposive creative activity.

This is the creative theory of evolution. It is essentially a freewill doctrine, for it makes freedom original and derives necessity from freedom.

4. Opposed to this theory is the view that cosmic evolution is a single materialistic process in the course of which, with new stages, there have emerged new qualities. Life and mind are new qualities, each of which has appeared at a particular level concomitantly with the actualization of particular material conditions. Purpose and freewill are subjective illusion. There was a time in cosmic evolution when life was not, and there will come a time when it will be superseded by conditions which make it impossible. All we can say about the substance which we conceive as the substratum of the cosmos, and of ourselves who know it, is that it must possess within itself the infinite wealth of all existence, not only of all actuality, but of all possibility.

This is the emergent theory of evolution, and, like Spinoza's doctrine on which it is modelled, it is a determinist view.

However difficult or even impossible it may be in the present state of our knowledge to decide between these rival theories, there can be no question of the importance of the problem. Man has come into his kingdom. The life force which has evolved him seems to have put his destiny into his own hands. He may turn his freedom to self-destruction or he may use his freedom to achieve new triumph. Freewill is therefore a practical interest, even if our freedom be only seeming.

CHAPTER XVI

CONCLUSION

Are we able to clear up the problem of freewill and at last put an end to the old-time controversy? If we can it is not by the discovery of any defect in the logical argument. Stated in logical terms, the dilemma of Buridan's ass is as obstinate as ever. Given the conditions, suppose the motives for and against a particular action to be counterbalanced, no entity can be conjured up out of the mysterious depth of consciousness to decide the issue, no will is indifferent to motives. What we can claim, however—and this is of prime importance—is that the modern world has found a way to transform the problem. Freewill is no longer the problem of the existence or non-existence in the individual creature of an abstract quality or property; it is seen to be a question of the concrete nature of living activity itself.

I have sought to state this new aspect of the problem in such a way that the reader may make his own choice. My own view is quite decidedly on the side of freewill as interpreted by the concept of creative evolution. Let me, then, finally state the problem as it presents itself from the standpoint of this concept.

Would Dante's free man, like Buridan's ass, die of hunger placed between two equally attractive foods? The only way to answer the question is to criticize the concept on which it is based. Is the intellect absolute? Can we glimpse something of a reality which overflows the frames in which the intellect moulds it? Can we obtain a vision of the creative force which has devised intellectual frames and evolved in man his logical mode of activity? Can we discern in our intellect a means of gaining efficiency by imposing necessity on a natural freedom? If a philosophy of freedom is possible it would seem to require the kind of strong philosophical effort which Plato has supposed in his famous allegory of the prisoners chained in the den with their faces turned away from the light, condemned to know truth only by means of the shadows cast on the wall by the real things; some by straining against the chain have been able to behold not only the real things which are casting the shadows, but also the sun, which is the source of the illumination. So we, fixed in our attitude of attention to life, intent on the reality which is being made, on the task incumbent upon us, may, by a strong effort, become aware of the reality which is not already made, but making itself. This is the true conception of freewill.

Milton's Satan is a magnificent personification of the spirit of man. After the overwhelming disaster to his enterprise, we see him gathering his followers on the plains of hell, crushed but unsubdued, planning schemes for turning his defeat to advantage and victory. Yet some we are told

> "Sat on a hill retired,
> In thoughts more elevate, and reasoned high
> Of providence, foreknowledge, will and fate,
> Fixed fate, freewill, foreknowledge absolute,
> And found no end, in wandering mazes lost."

In any case, we can claim that we are now able to see wherein the difficulty of the freewill problem lies. It is the difficulty that the very terms in which alone we can give outward expression to what we know as inner intuition contradict the affirmation, even in affirming it. The logical victory is always with the determinist; yet it invariably proves to be only a logistic triumph. The determinist can silence but cannot convince, nor can he act as though he were himself convinced. Like the aged Galileo before the Inquisition, forced to recant by an authority he had no means of resisting, he could only protest inwardly, "Eppur se muove." So we, confronted with the logical dilemma we cannot escape, can only console ourselves with the intuition of a life which is not commensurate with logic. We can rationalize freewill only by identifying freedom with the life principle itself.

NOTES, REFERENCES, AND BIBLIOGRAPHY

Buridan: Jean Buridan lived in the first half of the fourteenth century. He was a Professor of Philosophy in the University of Paris and a famous logician. He was a follower of William of Occam, the nominalist. The illustration of the ass is not found in his writings. The quotation from Dante's *Paradiso*, earlier than Buridan's works, shows that the simile was a familiar one, whatever be the origin of the actual form.

Jonathan Edwards: There has been a considerable revival of interest in the work of this philosopher in the last twenty-five years. The famous treatise on Freewill is only to be read in his collected works in four volumes published in 1744 and an edition in eight volumes in 1808.

Spinoza: The argument for the rejection of final causes is in the Appendix to Book I. of the *Ethica*.

Leibniz: For a general account of Leibniz's theory the reader may consult the volume on *Leibniz*, by H. Wildon Carr, "Leaders of Philosophy" Series. (Ernest Benn, Ltd.)

THE EVOLUTION THEORIES: The works referred to are: *Time and Freewill*, by Henri Bergson (Allen and Unwin); *Creative Evolution* and *Mind-Energy*, by Henri Bergson (Macmillan); *The Philosophy of Change*, *The Theory of Monads*, *Changing Backgrounds in Religion and Ethics*, *The Unique Status of Man*, by H. Wildon Carr. (Macmillan.)

Space, Time, and Deity, by S. Alexander. (Macmillan.)

Emergent Evolution and Life, Mind, and Spirit, by C. Lloyd Morgan. (Williams and Norgate.)

Introduction to Modern Philosophy (Oxford Press) and *The Future of Life* (Putnam), by C. E. M. Joad.

BENN'S SIXPENNY LIBRARY

LOGIC AND REASONING

By S. V. KEELING, M.A., D.-ès-L.

Lecturer [illegible] of London, University and
Birkbeck [illegible] Trinity College, Cambridge,
[illegible] University

LONDON: ERNEST BENN LIMITED
BOUVERIE HOUSE, FLEET ST. E.C.

First published 1929

MADE AND PRINTED IN GREAT BRITAIN BY
BILLING AND SONS, LTD., GUILDFORD AND ESHER

PREFACE

THIS *is not a text-book on Logic.* It pretends only to indicate a way of approaching logical studies. I have attempted to show, with the barest minimum of technical expressions, the sort of topics that find a central place in current logical discussions. Readers desiring to follow up any of these topics will, it is hoped, find the "References" appended to each chapter help them to a fuller understanding, but it will be found advisable, as a rule, to acquire a general view of the whole field before setting out to *approfondir* a "single" topic on its own account. The Bibliography at the end will suggest suitable reading for this purpose.

S. V. KEELING.

February, 1929.

CONTENTS

PAGE
PREFACE - - - - - - 3
CHAPTER
I. THE HABIT OF SOUND REASONING - - 7
II. BELIEFS AND FACTS - - - 18
III. INFERENCE AND EVIDENCE - - - 28
IV. THE ANATOMY OF ARGUMENTS - - 40
V. GENERALIZATION AND EXPLANATION - - 53
VI. INDUCTIVE PROCEDURE - - - 64
VII. THE BASES OF GENERALIZATION - - 72

BIBLIOGRAPHY - - - - 79

LOGIC AND REASONING

CHAPTER I

THE HABIT OF SOUND REASONING

" WHAT passes for knowledge in ordinary life," writes Mr. Bertrand Russell, " suffers from three defects : it is cocksure, vague, and self-contradictory." Few of us will probably deny the truth of this criticism—at least, when it is knowledge other than our own which is in question! For ourselves, our own opinions and beliefs, though we admit to an abstract liability to error, the actual commission of it is, we feel, rather an exception than the rule. And this relief we are the more ready to allow ourselves when the beliefs in question happen to be those we feel strongly about. It is hardly more difficult to be impartial about contentions that evoke no emotional warmth in us than it is to be generous with what we do not value. This, however, is only half the story. It is also true that day to day experience has at times the trick of leading us wonderingly into uneasy doubts—doubts as to whether all is well with our familiar furniture of opinions and convictions. Or, in an unclouded hour, reflection will suggest that certain views we hold are incompatible with each other. Memory, again, may revive earlier opinions which contradict our present ones on the same matter. In this way, a general query may form itself in our minds : How can we tell, in respect of any particular belief we hold, whether we are, once for all, rationally justified in holding it? And further, as moderate minds, affected with a healthy tincture of self-criticism, we may come to recognize the difficulties besetting a sincere attempt to judge soundly and reason cogently. Now, as we progress, we shall find ourselves more ready to substitute for what was cocksure, something tentative; for what was vague, something precise; and, perhaps, for what was previously pleasing or flattering, something less agreeable, if necessary. Instead of trying to bend facts parallel with our wishes and preconceptions, we shall, with less obstinacy, conform our wills to accepting the previously unsupposed if our evidence requires it. This frame of mind may involve that we may be able to " make up our mind " less frequently than we were in the habit of doing. But when we do find ourselves able to make it up, we shall have the satisfaction of a rational justification for doing so.

Now, amongst this familiar furniture of our mind —our daily beliefs and hardened convictions—some we shall recognize as being particularly due to our own efforts to " think straight," the results of our own private enterprises in reasoning. Other beliefs we shall distinguish as having been acquired by us in innumerable ways that are not due to our own efforts. And a sweet reasonableness may lead us to suppose that if the conclusions of other people are sometimes doubtful, uncertainty can scarce be uniformly absent from our own. Yet the determination to seek out and sift the evidence before passing judgment can do much to avoid the commission of error, and, hence, the risk of it. By consistent practice we may fairly hope to think more correctly. In this way, the question arises: How then can we *acquire the habit* of doing so? The disposition or willingness to do it may be an indispensable condition for its attainment, but alone it can hardly be sufficient to bring the desired result.

These two problems—firstly: *How can we tell of any belief, whether acquired by reasoning or other-*

wise, whether it is rationally justified? and secondly: *How can we learn to reason correctly?*—are obviously connected in an intimate way. The first is a problem of logic, the second is mainly one for psychology to decide. But an answer to the latter presupposes, to some extent, an answer to the former. Discovery of the means by which a habit of correct reasoning may be formed (as of any other "correct" habit) depends in part on knowing what constitutes this important feature of "correctness" in reasoning. Take the second problem first. Let us suppose for the moment that we *do* know what constitutes a correct piece of reasoning correct, and just why any piece of fallacious reasoning *is* fallacious. That is to say, suppose ourselves to know already what are the conditions which no piece of valid reasoning will fail to conform to, what are the principles that confer validity upon any conclusion we are rationally justified in entertaining. Now, these conditions, knowledge of which in itself is purely theoretical, are capable of being employed as practical rules or principles by means of which to *test* particular pieces of argument or reasoning; not that we may suppose that every argument which obeys them necessarily leads to a true conclusion, but we may be sure that no argument which fails to conform to them can possibly be sound.

It is, however, one thing to discover whether some particular conclusion to which our reasoning has brought us is a valid conclusion, and quite another thing to discover how the habit of correct reasoning may be cultivated. Logic is a science, essentially a body of *theoretical* knowledge. Its primary function is *not* to enable one to reason more correctly, but to explain the conditions of valid inference—though, of course, an understanding of these conditions may facilitate improvement in our reasoning ability. But it is a science which can be applied to particular cases of reasoning, and when so applied, we are considering its "practical" aspects. The habit of correct reasoning, then, concerns the practice of *applying* something, but what is applied remains at bottom "theoretical" or "knowledge." Consider, by way of illustration, the practical aspect of logic and the practical aspect of a language. When some grammar has been mastered, the learner begins to apply it in conversation. At the beginning he commits blunders, which can be corrected by him by reference to his "theoretical" knowledge of the grammar. With time and practice he commits fewer mistakes and attains greater confidence in his conversational powers. He feels that were the grammar of his speech called into question, he could defend it, or justify it—that is to say, he would be able to *explain* its correctness by recourse to the syntactical principles of the language. The same is the case with Logic. An intelligent mastery of its principles, an insight into the "reason why" of them, tends, when "grafted" into the habit of *applying* them to particular pieces of argument, to form a "logical mind." An expert reasoner will feel beforehand that if an inferential step in one of his arguments were questioned, he could defend its correctness by recourse to logical principles and exhibiting its conformity with them. Now, our learner's conversation may be syntactically correct, and yet open to the objection of being un-idiomatic. There is a question of using the "right" words and phrases, those proper to the genius of the language, besides the question of rightly combining them. Similarly, accuracy in the performance of inference will show that we can reason correctly, but it alone cannot secure that what we reach is knowledge. Our steps of inference may be faultless, yet the conclusion we have drawn may be false notwithstanding. From lack of fuller knowledge, knowledge more accurate or more adequate, we may have inferred our conclusion from "evidence" which is false. However impeccable our inferential process may have been, the conclusion in this case cannot be other than false.

All educative effort is in the main one of acquiring certain sorts of habit. The application of logical rules is first made consciously by the learner, much as, in linguistic study, the early stages consist in a conscious application of grammatical rules to "exercises" or examples. But with practice and time our thinking tends to become more accurate "on its own account." The rules are no longer *consciously* applied, but are felt to be "in the background" ready to be summoned up at our bidding. This, then, would seem to be one characteristic of the thinking of logically trained minds. It is *not that they consciously apply rules before drawing conclusions,* but that, their argument completed, their conclusion asserted, they immediately see (or can easily come to see) just which logical principles that argument depends upon for its validity. In other words, *criticism* of the validity of an argument consists in the explicit application of logical principles to that argument, but correct *reasoning* does not involve the explicit recognition and application of logical rules during the reasoning process itself. Even a logician, whose special business it is to analyze and formulate logical principles, does not, when thinking about other matters, explicitly call those principles to mind and consciously apply them during the course of his reasoning. He may do so, of course, after his course of reasoning is *completed* and his conclusion drawn, either to satisfy himself that he has made no slip or to defend his argument from attack. So to form the habit of correct reasoning does not mean to form the habit of holding logical principles continuously before our minds, or of consciously applying them successively throughout any actual stretch of thought-activity. Such explicit presence of rules to the mind, during the course of reasoning activity itself, would prove a real embarrassment to clear thinking rather than a means of promoting it. So one characteristic of a logically trained mind will be, not so much a recognition by that mind during its reasoning processes of a successive application of logical principles, but rather, its capacity to summon up unhesitatingly at a moment's notice, the relevant principles which are together sufficient to exhibit the truth or falsity of a given piece of discourse. And *this* application of logical rules is one that takes place *after* the actual reasoning process is finished.

What a study of logic can give us then, is, firstly, a clear understanding of the character and function of the principles on which all sound reasoning depends; secondly, an insight into the way these principles are related to one another, and, by this means, an insight into the structure of thought itself. Add to this that we give ourselves plenty of practice in the analysis of concrete arguments good and bad, and that we take the trouble to pursue this analysis in a thorough-going spirit, or what is the same thing, that we are unwilling to turn our backs on an argument until we have sucked it dry of all that is logically interesting in it—given this, "theory" and "practice," we may fairly trust to being on the highroad to acquiring a uniformly critical habit of mind and a keen eye for fallacies. And by "critical mind" is meant, not a carping or sententious manner of discussion, but a mind that is not beset with an everlasting itch to affirm where it does not know, to speculate wildly in the absence of evidence; in short, the critical mind *par excellence* is one which consistently declines to believe anything when no reason is forthcoming to show that it is true.

With such a notion of what is meant by a "logical" or "critical" mind, we are in a position to return to our original question as to how it may be formed. Some few people, it would seem, need do little or nothing to form it, for possessed natively, so as to say, of such a critical temper, they need little beyond the occasions offered by daily life to keep it "in trim." Others there seem to be who neither possess such a mind nor the capacity to attain it. Their abilities may be even outstanding in some respects, yet it seems that, to their dying day, they will never feel the "logical force" of an argument. The great majority of mankind, however, appear to come in between these extremes. Their reasons are sometimes sound and sometimes faulty, and, generally, they are quite oblivious to *why* it is the one or the other. So it turns out that they sometimes suppose themselves to have reasoned soundly when their argument is really unsound, or they come by conclusions which are true for reasons which themselves are either quite false, or else such as do not imply the conclusion they have drawn. Such muddles and confusions are not merely theoretically possible but constantly occurring in our ordinary thinking. So it is not surprising to find people usually ready to turn to some form of "authority" in the hope of setting their minds at rest, in matters where "authority" cannot by the nature of the case determine validity or truth.

So far as the *general* conditions under which the habit of correct reasoning may be formed, these will be largely those under which *any* habit may be acquired. In the last resort, the only way to acquire a habit of acting in a certain way is to try and act in that way again and again. Successful attempts tend to be specially attended to and "enforced" by feelings of self-encouragement, unsuccessful ones neglected, and in part therefore eliminated. Practice, if accompanied by a clear notion of exactly what it is we want to do, and attention to the probable causes of failure in respect of unsuccessful responses—these, enforced by our own feelings of satisfaction or discontent, will tend to secure elimination of inappropriate responses. Acquirement of skill is learning to perform accurately, attainment of accuracy is simply the elimination of inaccurate attempts, improvement is measured by the diminution of inaccurate attempts. Thus the learning of the desirable thing is simply an unlearning of the undesirable one; diminution of unsuitable responses amounts to greater frequency or constancy in performing suitable ones. Such a process of elimination, then, makes possible *fixation* of the habit. So, too, with reasoning. *Some* sort of reasoning is native to the most primitive man, but the habit of *logical* reasoning does not seem to be an inherited mode of response, but, rather, a late acquirement due to modification through learned control of our intellectual processes. Thinking we "start" with, but it is unclear, incorrect thinking. Formation of the habit of sound reasoning is largely a breaking with this inherited manner of thinking, and we break a habit by forming a counter-habit. Now, repeated exercise has a cumulative effect—the more persistently we "pull ourselves up," the more often we clearly recognize the errors inherent in particular thoughts, the less often are these types of error liable to recur. In that measure we are "learning" to think correctly.

We may also begin to discern more clearly that our thoughts are interconnected, that they have a "character" or "form" which can be separated in mind from their "matter" (or what they are "about"). Thus we come to recognize them as belonging to one or other of a few well-marked types, already distinguished, formulated, and classified by logic. We come to "spot" relations between the several thoughts or propositions as they are successively asserted in the course of our argument, and so the argument as a "developing whole" is seen to possess a sort of pattern or form. And it is a clear perception of this distinctive form or "order" in our argument which, in the end, enables us to recognize it as an instance of some general type. In this way a knowledge of logical principles is an indirect aid. It does not directly, of itself, promote or develop the *habit* of valid thinking, but it indirectly facilitates an unhesitating acceptance or rejection of any argument after it has been submitted to analysis. So we acquire a disposition to proceed in certain ways, and not in others, in the course of argument generally, no matter what be the subject-matter in question. Our minds become "predetermined" to proceed in certain ways, to reach certain sorts of results rather than others. Logical principles indirectly contributing to determine the sort of conclusions we shall reach, may then figuratively be said to "guide" or "control" our reasoning activities in some measure.

As to forming a habit of accurate reasoning, there would thus seem to be no better way of doing it than by examining critically, in the light of logical principles, particular beliefs and particular samples of reasoning, sound and unsound. Take a belief and first get quite clear as to what is maintained in it. We shall understand more fully what exactly is the import or "reach" of the belief if we inquire also what it directly *denies*. Every true belief implies the falsity of some other belief—its contradictory. Formulation of the contradictory of a proposition will often put us on the scent of a fallacy. Treat arguments in a similar way. Take a clearly stated argument and pull it apart, piece by piece. Get clear about what is being asserted in each of its constituent propositions, always distinguishing between those which function as evidential propositions and those which function as their conclusions. We should not only satisfy ourselves *that* the conclusion does really follow from what is stated in support of it, we should also satisfy ourselves *why* we think it follows. This calls for the application of the principles of logic. Then sometimes take a bad argument and treat it in a similar way. Let us satisfy ourselves not only *that* the conclusion does not follow from the evidence adduced, but *why* it does not do so. The spirit in which we might usefully begin the overhauling and reform of our reasoning is one in which we first bring ourselves to take an interest in samples of it—taken as "samples." If we can induce an interest in samples of reasoning *on their own account,* leaving in abeyance for the moment what interest we may have in the subject-matter the reasoning is about; if, as an initial and provisional measure, we can give the same disinterested attention to a faulty piece of reasoning or an irrational belief that a surgeon gives to an unusual pathological tissue; if, in a word, we can bring to bear some of that precious childish curiosity which incessantly asks the "reason why"—we may be well along the right road to our destination. When the habit has been acquired, this selective attention, born of an interest in the process and products of reasoning as such, may safely be left to look after itself. The other interest, which, before we began to take reasoning seriously, centred almost wholly in the *things* which our thought was about, may now fairly be allowed to reassert its claim to a share of our attention without risk of it usurping the due place of our newly acquired "logical" interest. For now, conscious of a liability to error through preconception or bias, and aware of the conditions that logic requires to be fulfilled, the danger of an ingrained "language-habit" conducting our "thinking" for us is considerably lessened.

To sum up: consistently sound reasoning in the vast majority of cases is an outcome of habit. Such a habit can be acquired, but like all habits, it presupposes "interest"—an interest in "correctness." Its formation depends partly on an attitude of mind which submits willingly to the constraint of facts. Such a mental attitude in turn presupposes a widening of our normal range of interest—a temporary withdrawal of it from the "things" our beliefs or reasonings bring before our minds, and a concurrent concentration of attention on the structure and steps of arguments in themselves, all directed to the dual end of discovering, firstly, what evidential presuppositions those arguments make, and, secondly, whether those presuppositions can be maintained. For a while, procedure along these lines will inevitably result in more frequent suspensions of judgment. It will not favour the collecting and amassing of convictions. And none of us would, perhaps, be any the worse for following Descartes' advice of trying to doubt experimentally once in our lifetime our commonly received beliefs so as to discover what basis they have in reason and fact.

Our procedure, then, in argument and thinking generally will be (i.) negatively, to withhold judgment where we are not clear of what precisely is being maintained, or what exactly is required to prove it; (ii.) positively, to be willing to consider arguments and beliefs on their own merits, with a view only to their rational justification or rejection; (iii.) to acquaint ourselves, by a study of logic, with (*a*) the conditions which no valid argument may contravene, and (*b*) with the methods available for procuring evidence in support of beliefs whose truth is under examination. The significance of these suggestions, however, will become clearer if we turn now to consider two central topics around which all accurate thinking turns—namely, *Belief* and *Inference*.

REFERENCES

Russell, B.: *Sceptical Essays* (Chs. I. and IV.).
Russell, B.: *Problems of Philosophy* (Ch. XV.).
Russell, B.: *Mysticism and Logic* (Chs. II. and VI.).
Morley, J.: *On Compromise*.
Plato: *Republic* (Bks. I. and II.).
Descartes: *Discourse on Method* (Parts I., II., and III.).

CHAPTER II

BELIEFS AND FACTS

There cannot be clear thought unless clear meanings attach to the terms we use. And since our purpose in this booklet is to reach some clear thoughts about clear thought, we cannot do better than inquire what meaning we attach to such words as " belief " and " inference," " fact " and " knowledge," which figure throughout these chapters. Such words are not unambiguously used in common speech. Logic has succeeded in conducting its inquiries for the most part without creating a special terminology. It has taken over as its technical terms words from common speech, but it has attempted to assign a preciser signification than is usually accorded them there. Now, when words are used in more than one sense, referring *now to one thing and now to another*, it is seldom that the things referred to are totally unrelated to each other. (When they are, such words, of course, form the stock-in-trade of the punster.) The variant meanings are, in fact, usually connected rather intimately, and it is just for this reason that their difference of meaning comes to be overlooked. Sometimes, of course, verbal ambiguities arise through useless innovations which spoil the vocabulary of the King's English, as, for example, when " phenomenal " is allowed to mean " exceptional " or " extraordinary," or " transpire " is used for " occur " or " happen."

But often (far more often than is usually supposed) verbal ambiguities are due to the fact that language is not so analytic as the thought which seeks expression through it. Language is primarily concerned with the business of living and was invented to facilitate it. And as the sort of thinking occurrent at the primitive level is not in principle exceedingly complicated, it is not surprising to find that our language may prove inadequate for purposes in which accuracy of statement is of primary importance. In so far as our activities in modern life have become " specialized," in proportion as they depend more and more upon the prior formations of judgments—that is, in so far as judgment has increasingly to precede action—in so much that the ordinary individual and not only the professional scholar is expected to have rationally justified views on political and economic disputes, on questions of war and peace—so far as this is a normal requirement and not an exceptional one, a great deal more reasoning of a theoretical or hypothetical character is required of everyone than in the days when Adam delved and Eve span. To some extent our thought in these more complicated issues has been aided by piecemeal invention of new words or " technical terms " on the part of those whose special business it was to study the problem, these new verbal inventions having passed in some measure into the vocabulary of daily life. But the creation of such new terms with well-defined meanings only facilitates clear thinking and the clear expression of it to a limited extent. We tend to think in significant " wholes," to come by our meanings " in the lump," so to speak, and only *afterwards* to sort it out piece by piece and express it successively by significant noises or visible marks. That is to say, we do not work up to a complex conception by successive additions of significant words, and so in the end reach, so to say, a cumulative complex meaning. Our ordinary thinking appears to proceed, much like our ordinary perception, by successive discriminations within a slowly changing and developing field of meaning. And we not only tend to think in " significant wholes," but we also express what we have thought in a similar fashion—that is, in complete sentences and not by single words, each having its fully summed-up meaning in separation from the whole sentence or descriptive phrase of which it is a component. The supposition that the terms of a proposition stand to the proposition, or that the words of a sentence stand to the sentence, as the letters of a word stand to the word, is an unduly naïve view of the structure of thought as of language. So, while recognizing that language is certainly a vehicle of thought, and that well-constructed language with a suitable vocabulary can facilitate the conduct and clarify the expression of thought, the fact also remains that language, in a sense, clogs its free and swift passage and, being at best an imperfect instrument of interpretation, creates some confusions even though it dissipates others.

Insufficient attention to the meanings of such words as " belief," " knowledge," " opinion," " certainty," " truth," " validity," " fact," " inference," and their cognates has been the occasion of blunders and confusions. For instance, we speak of believing when we do *not* claim to know, also believing *because* we know. We speak of a " considered opinion " when it is enforced by grounds, of a " mere opinion " to indicate alleged absence of them, and we contrast opinion with knowledge as implying the relation of unplausible to probable, or that of probable to certain. Again, in claiming *to know* something, we may mean " to have met an instance of it," or " to be in possession of a piece of knowledge," and here by *" knowledge "* we may mean "" something which most people are agreed upon " or " something which nobody *has* so far denied," or " something which nobody possibly *can* rationally deny " or "something which experts tell us," or are supposed to tell us. " Fact," too, is a term particularly confused in ordinary usage. We are told that such and such a fact is " not true," not in the correct sense that this statement *can* bear—that is, that " true " *cannot be significantly asserted of facts, any more than* "amorous" can be asserted of triangles—but in the sense that there *are* true facts, but the fact in question is not one of them! Any other string of terms central in discussions on, say, political or social issues would serve equally well as these to illustrate that the use of the same term by different persons, and by the same person at different times, is unduly varied. But all these are variations which are recognized by language as being permissible and idiomatic usages. No such common employment contravenes any grammatical rule. But it is only too desperately easy for logical rules to be contravened by them, and so fallacies *in dictione* arise.

It is a golden rule to work out one clear meaning for each important and central term throughout a discussion, and to adhere to that single meaning whenever the term is used. And straightforward meanings can be found for all the terms we want to use, which will work quite conveniently in practice. In this way we can at one and the same time secure clarity in our thinking and come to see how beliefs, opinions, knowledge, truth, and validity are connected with one another. Consider what is meant by the following: a proposition, a belief, an hypothesis, a conviction, an explanation, an assumption, an assertion, a supposition, a truth. Each word denotes something different. But there is, over and above this factor of difference between each, an element that is common to each. If we start with the first idea, that of proposition, we shall find we can express conveniently and simply these factors of difference and that common element. For a proposition is simply that which is *proposed* in thought for acceptance or rejection, as being either true or false. We may define a proposition as *whatever is true or false,* adding that whatever is neither cannot be a proposition. So, "Plato was born at Athens" is a true proposition; "Milton was born before Shakespeare" is a false one. But we also said that a proposition was formulated in thought for eventual acceptance or rejection by the thinker; in a word, it is not that which is true or false alone, but also that toward which a thinker may appropriately take up various attitudes of mind. Thus we shall say a supposition is a proposition that somebody has *supposed* (to be true or false), where the relevant mental attitude is one of supposal or assumption. An assertion is a proposition which somebody has *asserted* (to be true or false) where the attitude adopted is one of assertion or affirmation. The past participle in all such cases indicates the attitude of mind which has been adopted towards the proposition. Now, one and the same proposition can be at one moment "*supposed*" as being true—for example, in order to see what consequences follow from its supposition—and later *asserted* to be true—for example, when the consequences to which its supposition led are found to be corroborated by fact. Here there is a change of mental attitude, but not of proposition. Likewise a belief is a proposition *believed*, a conviction is a proposition of whose truth one *feels convinced*, an hypothesis is a proposition that is *hypothetically considered* and whose verification is awaited. Thus there is a *dual reference* to a common element (the proposition) and a variable element ("attitude of mind") *both* contained in such single words as belief, assertion, doubt, hypothesis, etc.

"Beliefs," "assertions," and "truths" always have reference to actual or possible states of affairs within which several distinctions must be drawn. Believing, for instance, is a "state of mind" we all find easy to identify but difficult to define. Now, obviously a state of believing cannot occur unless there is someone to "have" it, nor unless there is something being believed while that state of mind persists. That is to say, the state of affairs that exists at that time requires us to take into account *a believer, a believing,* and *a belief*—that is, a person who is having a feeling of belief at the time in respect of some or other proposition.

Nor is this all. That person is believing either truly or falsely—that is, the proposition believed by him is either true or false—though, of course, he may not *know* at the time which he is doing. This brings in an additional consideration. The believed proposition is true or false. There is no need to indulge in rhetoric about " Truth " to get a plain meaning in our minds for this. We shall say that a proposition *is true* if there is a fact for it to correspond with, that it *is false* if there is no fact with which it corresponds. Now, we have seen that a fact is *not* something that can be true or false. There either exists or there does not exist a fact of the sort described in our proposition. So to say that our proposition about Plato *is true* means that there is a fact with which it corresponds—that is, the event which took place at Athens and was the birth of Plato. And since there was no event which took place at Rome and was the birth of Plato, the proposition " Plato was born in Rome " is false. This gives a clear meaning for the truth or falsity of *any* proposition, no matter what it is about. Every proposition purports to refer to some fact—that which it is said to be " about "—and for every true proposition there exists a corresponding fact.

" Propositions," then, form our central theme here. True propositions stand in two relations, one to the *person* who adopts mental attitudes towards them, another to the *facts* with which they correspond. And on every occasion that there is knowledge, such a whole complex state of affairs becomes actual. And we may then conveniently distinguish within it three " parts "—namely, a " subjective," an " objective," and a " factual " one. The minimum of requirements to compose a knowledge-situation are: (1) A person who is judging or asserting to be true (2) some proposition then before his mind, for which there exists (3) a corresponding fact. In the whole state of affairs in which (1), (2), and (3) are thus interrelated, the person, together with the states of mind he successively adopts throughout the period that he is contemplating, supposing, doubting, believing, or asserting the proposition, make up what we can conveniently call the "subjective factor." The proposition, in respect of which such states of mind are lived through or undergone by the person, may be called the "objective" factor, since it *is*, for the time being, *the object* of his mental attitudes. And the fact which corresponds with the proposition, and on account of which correspondence he is justified in asserting it, may be called the factual element. Now, this factual element is clearly independent of the mind for its existence in a way in which the proposition is not. If somebody did not believe or assert at a given time, it follows that nothing would have been believed or asserted then; that is, there would be no proposition. But it does not follow there would be no facts—though, of course, it would follow that such facts as there were would in no case correspond (nor fail to correspond) with any proposition.

It is precisely this distinction which gives meaning to the word "discovery." To discover a "new" fact presupposes the fact exists independently of our minds; that is, independently of whether we *know* the fact to exist or not. If it did not do so, we should hardly be discoverers, but rather creators of it. My mind does in a sense "create" the *proposition* "coal burns"; it does not, however, "create" but simply "discovers" the *fact* of coal being combustible. So the distinction between proposition and fact not only enables us to speak significantly of "discovery" (hence of "knowledge" and, further, of "progress in knowledge"), but it also explains what was meant in the last chapter by saying that in the search for knowledge we should not try "to bend facts to our own preconceptions and wishes," but to induce our wills "to conform" to facts. If the character and structure of the outer world made no such constraint upon our will in judging, there clearly would be no meaning in the phrase "rational justification." "True" and "false" would then be meaningless words, for it is entirely through this notion of factual constraint that they are definable. Before passing from the "independence" of facts, we may further notice that "progress" in knowledge depends upon the possibility of affirming more and more propositions, not, however, that number alone is the important point, as we shall see in Chapter VI. Now, possibility of affirming hitherto unknown or uncertain propositions depends in turn upon the discovery of more and more facts. These newly discovered facts may be such as either permit us to contradict some proposition which we had only considered as problematic, or which we had mistakenly affirmed, or it may warrant our affirming, in positive terms, a brand-new piece of knowledge. Discoveries in science are constantly made in both these ways, indirectly and directly, though more often in the former.

Before leaving propositions, there is a third characteristic of them, recognition of which may help to dispel confusion. People are heard to declare: "Nothing is certain in science: the scientific certainties of one century are contradicted in the next." An adequate discussion of where they are right and where they are wrong in this confused opinion would require a lengthy analysis, and probably a book on the character of scientific knowledge to itself. But this at least here may be said. At bottom their allegation usually amounts to holding that beliefs may be true at one time and yet become false at another. The answer to this is summed up in F. H. Bradley's classic statement: "Once true always true, once false always false! Truth is not only independent of me, but it does not depend on change and chance. No alteration in space or time, no possible difference of any event or context can make truth falsehood. If that which I say is really true, then it stands for ever . . . If any truth is stated so that a change in events will make it false, then it is not a genuine truth at all." This principle is a *conditio sine qua non* of any consistency in belief and of the possibility of any validity in inference. The supposed exceptions to it which people have in mind usually arise from ambiguities in the *verbal expression* of the truth. Some intrinsic part of the fact which the proposition is about is omitted from the statement which records it. An extreme case would be, for instance, the assertion: "It is fine this morning." This would loosely be said by many to be true on some days and false on others. But directly we substitute some unambiguous description for the variable "this morning" (for example, "the morning of May 1, 1929"), the proposition is seen to be definitely true or definitely false, and such as never can change. What such people really have in mind, that is to say, is not *one* proposition at all but a whole host of them—as many *different* propositions as there were different mornings referred to. This peculiarity of a proposition (that it cannot change in respect of either its truth value or its import) makes it possible for a person to hold one and the same proposition before his mind as the object of a variety of mental attitudes, also for any number of people to hold *one and the same proposition* before their minds. A dozen people may have each "his own opinion" on whether a Liberal Government in England would be beneficial to our trade. There is in this state of affairs a dozen people, but not a dozen propositions, *one* proposition only, which is before the dozen minds—though, again, there may be many dozen varieties of "mental attitude" successively adopted towards that proposition.

To sum up, the points we have to be clear about in connection with propositions are five; namely, a proposition is, (1), that alone of which truth or falsity can be significantly asserted; (2), that which is definitely either true or false (whether we know which it is or not); (3), that towards which different persons assume different attitudes of mind, such as doubting, denying, asserting, etc.; (4), that which, if true, corresponds with a fact, if false corresponds with no fact; and, (5), that which cannot change, in respect of either its truth value or its import, and can thus constitute one "common object" of a variety of attitudes on the part of a single mind, or be the "common object" of a diversity of mental attitudes on the part of an indefinite number of minds.

Up to the present we have considered beliefs, taken as "finished products," in connection with their being believed and with persons believing them. That is to say, for convenience of the moment we have treated beliefs together "in the lump" without noticing that they differ from each other besides in respect of truth or falsity. These further differences among beliefs may be reduced roughly to two—differences in their "subject-matter," and in their origin. The first sort is obvious: a belief about Prohibition is different from a belief about the Bank Rate. And difference of *origin* among beliefs is scarcely less obvious. Their "origins" may also be reduced to two—namely, those reached by *inference,* and those not so reached —consideration of which introduces our next topic.

References

For "proposition" see especially W. E. Johnson's *Logic,* Vol. I., Ch. I. (of which my account is an abridgment), also Introductory Chapter and Chapters IV, VI, and VII.

Keynes, J. N.: *Formal Logic* (Pt. I., Ch. II.).

Russell, B.: *Problems of Philosophy* (Ch. XII.).

Russell, B.: *Philosophical Essays* (No. 7).

Descartes, R.: *Meditations* (Pt. IV.).

CHAPTER III

INFERENCE AND EVIDENCE

The many beliefs which a particular individual holds derive from two sources. Some are reached by his personal efforts in reasoning, while others are taken over from some external source such as "tradition" or "authority." And those of the former class are usually few as compared with those of the second. Such a rough and ready division, however, is not the last word on their "origin." For the latter class include a vast number of beliefs and opinions which, though not reached by our own inferential performances, are none the less reached inferentially by others. In some such instances, the grounds or premises of the inference may now have been lost sight of. Buried in the dust of the past, they are only relics of historical or antiquarian interest, though charged in their own day with significance and emotional value. The conclusions then derived from those premises have lingered on, however, because of their practical utility or their human worth. The belief still lives though its grounds or reasons are forgotten. Those who now believe such beliefs do not do so, then, because they infer their truth from other propositions already held by them as "grounds." All the same they do suppose that with sufficient skill and patience those grounds could still be unearthed and would be found to be genuine supports for their traditional beliefs. Or, they suppose that *some premises*, the *originals* or *others*, could be *reconstructed*, given enough ingenuity, and these would serve to show the truth of these present beliefs. Such traditional beliefs, then, accepted in each age because everybody else accepts them, though not actually inferred are held to be *inferable* in so far as they are believed *justifiable*. Nor are such beliefs, so held, necessarily invalid or irrationally believed. All the same, we shall entertain these beliefs bearing no "credentials" with them with a justified suspicion. We shall not be unduly influenced by the fact that they are widely entertained, for the treasuries of Cultural Anthropology are crammed with amusing specimens of beliefs that were once generally held, but are now totally discredited for adequate reasons. And we shall reflect that possibly some of the "traditional" beliefs we still hold suffer from the shortcomings of their buried brothers, and that their proper place is along with them in the archives of the past.

There is a second class of beliefs which resemble these "traditional" ones in that they, too, are not held by the believer because he is in possession of evidence proving them, but differ from the former in being held because such evidence *does exist* and *is known* by somebody else. The "somebody else," besides being possessed of evidence, also claims to see that this evidence is sufficient to prove the belief in question, and we in turn are satisfied that his assertions on both these heads are reliable. A great mass of popular belief upon political, economic, and scientific matters is obviously of this order. Few have the leisure and specialized knowledge, even if the inclination, to follow detailed proofs of the scientist, but they feel none the less rationally justified in accepting his conclusions. And often they are rationally justified in attaching high probability to such beliefs, though they may sometimes be inclined to attach higher probability to them than the expert himself does, through overestimating the weight of the evidence or being unable to appreciate the probability attaching to "rival" alternative beliefs on the same subject. Everybody is under the same disability of having to accept "on trust" the existence and genuineness of "evidence" in respect of beliefs of this class, which are far more numerous than is usually supposed, and often of extreme importance to our lives directly or indirectly. The disability attaches all round and varies only in degrees: some people have to accept more of such "beliefs on authority," but everybody has to accept some. And our only reason for accounting such beliefs "knowledge," when held by people not themselves possessed of the evidence, is, so far as I can see, that our refusal so to account them would lead to paradoxical and unflattering results! For scarcely anybody would possess more than a negligible amount of "knowledge," and that mainly about relatively trivial matters. So, rather than restricting so rigorously the meaning of the term "knowledge," we extend it, so that the term may apply to that class of beliefs for the truth of which the individual does *not* himself possess evidence, providing he has grounds for believing that somebody else does. In respect of the term "knowledge" as in countless other cases, practice and convenience decide our preference for assigning to it one meaning rather than another which is equally clear.

Thirdly, there is a relatively small class of beliefs which are not acquired by means of anybody's inference whatever, and are felt to be true with complete certainty. Though we are constantly *employing* these propositions in ordinary life, we need not and do not consider them, at such times, separately on their own account as pieces of knowledge. Such are axioms or propositions which we know to be true, because we see that they cannot possibly be false. Among them are the basic propositions of arithmetic and algebra, of geometry and of logic itself (see p. 50). Propositions which are not axiomatic are, of course, often asserted to be so. An inferential belief whose truth is so clear to us that we do not think it necessary to adduce our grounds for it, is often erroneously called "axiomatic," and cocksure opinions in general have this virtue unjustifiably claimed for them.

Now, if we compare these three classes of belief, the last is easily seen to differ from the two former classes, precisely in being *non-derivative* or non-inferential. That is to say, we may usefully group together those of our beliefs reached by inference (whether performed by ourselves or by others) and distinguish them from those not acquired through inference at all. This brings us to the second central topic in logic. The first was the unambiguous expression of beliefs, the second is the inferential validity of them. In the last chapter a belief was explained as being a proposition believed, and we discussed the proposition, not with reference to its acquirement or derivation, but in its relation to the mind of the person believing it, on the one hand, and to the objective order of facts and things in the world, on the other. We shall now consider the proposition believed in another connection: namely, in relation to its evidence, and in relation to the reasoning process which "draws" the proposition believed from that evidence. The condition under which a given proposition is true, and that under which it is validly inferred, though connected, are distinctly different. If the "evidence" collectively *implies* the proposition in question, then the latter is said to be *inferable* from that evidence, just because the evidence does imply it. That is to say, it is always permissible to infer a proposition if it is implied by the propositions adduced as evidence. But to say that a given proposition is *inferable* from others is not the same as to say that it is *inferred* from them. It is not "inferred" from them unless someone has actually inferred it (*i.e.*, unless someone has actually "drawn" the inference). But anybody who *had* inferred that conclusion would justify having done so precisely because the proposition in question *is inferable from* the others (that is, he would appeal to the fact that they *do imply* it). Hence, we represent the relation of implication to our minds as an *objective connection* or a factual connection which "constrains" us in the process of reasoning, prohibiting us, in view of the evidence, from drawing one conclusion and permitting us to draw another.

But there is one more ambiguity we must keep in view when speaking of "evidence." There is that which really *does* constitute the evidence proving a certain conclusion (that is, those propositions, whether discovered or not, which imply it), and there is that which is adduced *as* evidence (that is, those propositions which are believed to imply it). But what is adduced *as* evidence is not always evidence. We may mistakenly suppose B to be true, because we believe both that A is true and that A implies B—where, as a matter of fact, A does not imply B, but something similar, A^1, *does*. And we are all the more likely to be mistaken in such connections when B happens to be a true proposition. It is not an uninstructive pastime to elicit from a friend what he takes to be the evidence proving some one of his beliefs, and then set about satisfying ourselves whether what has been adduced as evidence, collectively taken, does imply the belief in question—though, obviously, it is a game which calls for an exercise of tact! This game rigorously pursued will sometimes disclose that our doubts as to whether what is adduced as evidence really is evidence at all, rest on one of the following counts. We may, firstly, doubt whether the evidence (irrespective of its own truth or falsity) does imply what was supposed (that is to say, the belief inferred from it); or, secondly, deny or doubt the truth of what is adduced as evidence itself, and therefore urge its inadmissibility (even though the belief "inferred" from it be true); or, thirdly, deny both that the "evidence" adduced is true and that the belief does follow from it. That is to say, we may doubt or deny, firstly, the *validity* of the inference; secondly, the *truth* of the "evidence," or, thirdly, both.

Let us consider the first two cases separately. The first is essentially a matter for logic to settle. The first principles of logic alone constitute the relevant court of appeal in such cases, also the final one. For if anybody disputes their authority, it can be demonstrated beyond doubt that they *are* both authoritative and final by any proficient student of logic. But validity is often confused with truth. We always *want* to draw a conclusion which is both valid *and* true, but in reasoning, as in many other connections, we cannot always do what we want. We can, by recourse to logical principles, ascertain whether our conclusion has been validly inferred or not, and if the former, we can further know that it will be true also, *provided the premises are*. Whatever is implied by a true proposition is true; but some propositions are true, though the premises of the argument claiming to demonstrate them are false. For this reason we have to distinguish between "holding a true belief" and "having knowledge," for a true belief need not be a piece of knowledge. To believe a true belief on false grounds is simply to be misled into believing something true. It does not constitute knowledge, for to be justified in claiming to *know* the belief to be true involves that we also know the grounds which imply it, and, since false propositions imply only false propositions, we can scarcely claim to have "knowledge" in respect of the conclusion in such a case. For instance, if we suspect X cheated at cards, and later, on the production of evidence unknown by us at the time, he is *proved* to have done so, there is a tendency for us to declare: "I knew all the time he was cheating." But, plainly, it is not the case that we *knew* any such thing. All we may justifiably claim is that we held a true belief.

The person who collected and pieced together the evidence against X, however, presumably not only held a true belief about X, but also came to acquire *knowledge* about him. Our true belief was not knowledge because (*ex hypothesi*) it was not seen by us to be implied by other true beliefs we had about X. All pieces of knowledge, then, are true beliefs, but not all true beliefs are knowledge. That such "slips" arise is due to our predominant interest in "conclusions" and a tendency to neglect "grounds"—the everlasting urge to "get somewhere." Another witness to this primary interest in beliefs to the neglect of "evidence" is to be found in the actual *order* of our ideas throughout an argument. It is almost invariably the case that we assert our belief *first* and cast around for plausible grounds to support it *afterwards*. The psychological order of ideas in our thinking betrays the directive influence of our "interest." Nor is this objectionable —provided that we *do* look for confirmatory evidence afterwards, and provided that we stop to examine whether what we have proposed as evidence is really adequate to prove the belief. That is to say, we may, by recourse to logical principles, satisfy ourselves about the *validity* of an inferred belief, but not of its truth, though we may be assured of its truth also, provided we are already assured of the truth of the evidential premises. But, of course, it is precisely these that we often doubt, and this now brings the matter into line with the second case.

If we do not know whether our evidential premises are true, can we be rationally justified in claiming to *know* our conclusion? The answer to this depends in part upon whether our premises are taken as being certainly true or as only probably true. Our evidential premises will include at least one generalization, and whether this is a proposition we know with certainty or only with probability will depend upon its subject-matter—"what it is about." In the vast majority of cases it will not be known to be certain, but only to be probable, though the probability in respect of its truth may be so high as completely to warrant our "acting" upon it. That is to say, by far the majority of generalizations usually employed in arguments about social, legal, or scientific matters are reached inductively and are at best only probable. This does not mean that they ought to be mistrusted or considered "flimsy," but the very contrary. All depends on the degree of probability that may be rationally attributed to them. If the probability of their truth is high, then it would be distinctly *un*reasonable to refuse to accept them. Probability is not certainty, and we must be prepared to accept on principle any belief for which evidence is forthcoming to show that it is more likely to be true than false. Half a loaf is better than no bread.

Probability is the guide in practice, and it must be the guide in seeking truth also. And since a vast proportion of what ordinarily passes for certain knowledge is at best probable belief (or probable opinion), we must allow its entry into the garden of knowledge. For if we refuse we shall incur the paradox noticed on p. 30—namely, that almost everyone's "knowledge" will be curtailed to an impracticable degree. For generalizations that are entirely "uncontaminated" with probability are mostly confined to a few propositions of pure mathematics and of logic. There can be little hesitation, then, in agreeing that probability is the "rule of life"! And since it would be so undesirable to define the useful word "knowledge" in such a way as to involve that the vast majority of our experts, authorities, leaders, and dignitaries of all sorts, had little or none, we shall not restrict it so as to exclude "probable belief." Now, a careful reader may feel that this modification is permissible only at the cost of going back upon the distinction just drawn between "knowledge" and "true belief." But I think this feeling is groundless. For it is quite possible to hold a true belief without any grounds for it at all, from causes—for example, irrational prejudice, dislike, etc.—which do not constitute any evidence whatever. But it is *not* possible rationally to hold a probable opinion without grounds. *Propositions that are entertained as probably true require grounds no less than those held as being certainly true.* In the former case we do not require the " evidence " to convince beyond possible doubt as we should in the latter, but we should none the less be rightly entitled to discuss whether the evidence adduced did or did not constitute grounds for the probability of our conclusion. That is to say, probability is always relative to evidence, and this usually tends to be overlooked. We often say that something or the other is " probably true," just because we are not aware that it is certainly true. Assertion of probability, however, is not justifiably advanced on that ground alone. We are also required to exhibit the evidence which secured probability for a probable conclusion—no less than we are required to adduce evidence securing certainty for a certain one. And it is precisely the evidence that secures a positive measure of probability (determinate or indeterminate) for our probable opinion which also secures the *im*probability of the contradictory opinion, and so rationally justifies us in believing the former rather than the latter. The higher the degree of probability secured for the probable opinion by our evidence, the higher the degree of improbability attaches to its contradictory being true. So the probability or the improbability of any particular belief being true depends upon evidence. If we have literally no evidence to show that a proposition hypothetically entertained is either probably true or probably false; if available knowledge on relevant subject-matter does not allow us to accord any measure of probability whatever to our proposed opinion, so that it appears to be a *mere* opinion quite uncorroborated—then we shall properly describe it as *possibly* true, not probably so, and the opinion will be spoken of as a possible one, and not a probable one. To assert probability of the truth of a belief always entails that the asserter is possessed of evidence which rationally justifies him judging the belief more likely to be true than to be false.

If one of our evidential premises be probable, the belief affirmed on the strength of it can, at most, be only probable, and never certain. A proposition which is known to be certainly true for adequate reasons, cannot, as we saw, turn out in the end to be really false, whatever be the character or importance of any further knowledge we may acquire on relevant subject-matter. But we may believe *with rational justification* that a certain proposition is probable when in fact it is really quite *false*. And later discovery of the falsity of our belief (when further evidence has come to hand) by no means shows that we were previously *irrational* in assigning probability to it. It does not even show that we were *mistaken* in doing so, for the degrees of probability which may be rationally affirmed of one and the same proposition at different times, in view of different sets of evidence, will vary. Probability of the truth of a belief depended, we saw, on the collective character of the evidence adduced in its support. But the evidence may " change " in several ways, so it follows that the probability rationally assertible of one and the same belief will " fluctuate " with it. Or, to state the case more correctly, some of the evidence which once secured a given measure of probability for the belief may since have been proved false; or itself less probable than was supposed, or, again, " new " evidence may have been discovered—in which cases there is not strictly one set of evidence which " changes," but necessarily different sets of evidence, which will rationally justify our assigning lesser or greater degree of probability to the truth of our belief. So we can see, in the light of this " dependence upon evidence," that, *e.g.*, the phlogiston theory in chemistry may have been quite a respectable belief in its own day, having due regard to the state of relevant chemical knowledge at the time; but the same belief, in the light of different evidence available to-day, would no longer be a reasonably probable belief. So our ancestors will not appear particularly foolish to one who knows the character and quantity of the evidence with which they were confronted in their own times, but only to one who is ignorant of this, knowing only the evidence as it stands to-day. A modern scientist who knows both the evidence at present available in respect of an hypothesis and sufficient of the history of science to which it belongs, is frequently able to see the eminent "respectability" of a now-discredited hypothesis, in view of the evidence available in the day it flourished.

The "reasonableness" we spoke of at the beginning, then, is based, not on any *sentimental* opposition to dogmatism or cocksureness, but upon a *rational* insight into the essentially relative character of the mass of ordinarily accepted knowledge. Positively expressed, we see a clear sense in which to speak of the "progress" of knowledge, so we are prepared to take a second step towards answering the declaration: "Nothing is certain in science: the scientific certainties of one century are contradicted in the next." (The first was taken on p. 25.) First of all, so far as we are referring to any of the empirical sciences—that is, excluding such formal ones as pure mathematics and logic—it is untrue that their successive stages of development are marked by the acquisition of "certainties." At most, probabilities are secured for their conclusions, though, of course, these may be exceedingly strong in some instances. And since the probability secured attaches to the conclusion—not absolutely or unconditionally, but relatively to certain evidence adduced—there is no contradiction involved in a belief being *à la mode* in the science of one century and discredited in that of the following. For properly interpreted, scientific conclusions are not to be represented as absolute, unconnected propositions, but as being intimately inter-connected, through and through relative to *other* propositions, both for their significance and for their probability, so that it is only within a system of definitions and evidential data inductively reached (directly or indirectly) that the " conclusion " acquires its rational probability. Of course, what we always *want* to assert is not that " the belief B is rationally probable in relation to the collective character of the set of evidence, X, Y, Z." We *want* to assert " B is true," unconditionally and without more ado. But our naïve wishes in the matter must be brought into conformity with the conditions under which knowledge is possible of attainment. We must not demand certain knowledge where, in the nature of the case, only probable belief is to be rationally expected.

References

Russell, B.: *Problems of Philosophy* (Chs. VII. and XIII.).
Ritchie, A. D.: *Scientific Method* (Ch. IV.).
Keynes, J. M.: *A Treatise on Probability* (Chs. I., II., and III.).

CHAPTER IV

THE ANATOMY OF ARGUMENTS

Rapidly reviewing the ground covered in the last chapter, we may now usefully take stock of our present position. Roughly it is this. We have knowledge only when we are possessed of beliefs that are probably or certainly true along with evidence which secures that probability or certainty for them, leaving aside for the moment non-inferential knowledge. So, fundamentally, to *possess* knowledge, or to know, is to have true beliefs and adequate grounds for them—that is, grounds which either imply them or which render their truth probable. To acquire knowledge is to pass inferentially from beliefs of which we are already possessed (and which now function as evidence) to a further belief or beliefs whose probability or certainty is dependent upon theirs. So attainment of knowledge is always a passage from belief to belief, from the known to the relatively unknown. And reasoning is always a *process* performed in our minds, or a passage in thought: propositions are not processes of mind. They are whatever can play the rôle of a "starting-point" *from* which the reasoning process "begins," or of a "destination" *at* which it arrives. And one and the same proposition may function, in different arguments, as evidential premise for one reasoner and as conclusion for another, or as conclusion at one stage of an argument and as evidential premise at another for the same reasoner. That is to say, argument is "continuous" in the sense that we use *as evidence* at a later stage what we have concluded *as knowledge* at an earlier one. Further, these inferential steps will be said to have been *correctly per-*

formed, or *valid*, when they have passed from and to certain beliefs, none of which fail when taken together to satisfy logical principles. The whole business of logic, then, turns about propositions and their mutual relations, on the one hand, and about inference, on the other.

Propositions and Inference, then, are selected as the really central topics for exploration. All else we may encounter in studying logic has been introduced to facilitate, or to make possible, explanation of the conditions under which propositions are certain or probable and inference valid. In so far as we are chiefly interested in arguments taken for themselves as specimens of reasoning which lead to knowledge or error—that is, in so far as our attitude towards the argument is predominantly a " logical " one—our attention will be concentrated in the main on two matters. Ignoring for the moment the " material " import of the propositions composing an argument (except in so far as is necessary in order to understand what is really asserted in the propositions), and having regard to the formal character of the evidence, logical analysis will consist in discovering, firstly, whether one of the alternative sets of conditions, which must be satisfied if our conclusion is to be valid, *has* been satisfied in each particular instance, and, secondly, whether generalizations among the evidential premises have been well established. There is one requirement common to all the alternative sets of conditions that different types of argument must satisfy if their conclusion is to be true—namely, the requirement that at least one proposition in the evidence should be a generalization. So the exploration of the second point naturally follows as a result of having performed a thorough analysis. Consideration of the second point is usually marked off as a distinct inquiry from the first, and falls within that division of Logic called Induction or Scientific Methodology. This will be taken up later (Chapter VI.). For the moment we will restrict our attention to matters falling under the first consideration.

Any argument is made up of propositions, one of which is called its conclusion, the remainder collectively composing the evidence. (Sometimes, when argument is said " to prove " a certain conclusion, the term " argument " is understood not to include the " conclusion," and amounts to what I have here called " evidence.") Now, obviously, arguments may differ in many respects: one will be longer or shorter than another, or will be " materially " different from another in that its premises are about different terms, or one may be formally different from another. One argument, for instance, may wholly consist of affirmative premises; another, of affirmative and negative ones mixed; a third, wholly of generalizations; a fourth, of generalizations and particular propositions mixed, and so on. So, clearly, the conditions that must be satisfied for a valid conclusion from evidence of one type will be different from those to be satisfied by evidence of another type. Hence we speak of " *alternative* sets of conditions " in connection with formally different arguments, these alternative sets being each deducible from the most general, or fundamental, conditions of validity.

Now, we could, given time, interest, and skill enough, construct a logic for ourselves, providing also that we had seized with sufficient clearness exactly what was required to be done. Aristotle himself performed such an analysis and formulated a system of logic on the basis of it. This system underwent no really radical change until comparatively recent times. Two centuries ago Kant could declare that Logic had not been compelled to retrace a single step since it came complete from the hands of its founder Aristotle. However this may be, much has since been changed, and Kant's view certainly cannot be reaffirmed to-day, especially having regard to the radical innovations that have emanated from Cambridge within the last thirty years. Documents relating to the actual methods Aristotle used in constructing his logic, if ever they existed, are no longer extant, but we may well conceive one possible line of approach that could be followed in formulating generalizations expressive of the conditions that valid inference must satisfy. Clearly, we cannot arrive at valuable generalizations of any sort unless we have before us ample, well-assorted, and fairly representative specimens of the material to which the generalizations are to apply. So an analysis directed with a view to reaching an adequate and comprehensive grasp of general principles underlying correct argument will need for its material correct arguments themselves, since what we should be seeking to determine is simply what is common to all such arguments *as correct*. We may, then, imagine ourselves going to work at the beginning in some such empirical way as this. First, we should amass many specimens of correct arguments drawn from widely different sources. Those taken over from daily discussions on life and affairs would probably need restatement so as to avoid verbal ambiguity or unclearness, for unless the language expressing the thoughts is clear, we can scarce expect the thought itself to " shine through " in its formal purity. Other arguments we should take over as data—for example, particular reasonings in elementary geometry, natural science, economics, etc.—would be less likely to require revision, for they are already, for the most part, products of clear thinking. In this way we should have assembled some representative data—namely, a number of conveniently short arguments, all clearly stated, and the work of analysis could begin. The object in view would be to exhibit what we might comprehensively call the *anatomy* of these arguments, neglecting so far as possible their " flesh " or subject-matter, and concentrating attention upon their "skeletons" or form. Now, since arguments are composed of propositions, the *form* of our propositions will determine that of the argument into which they enter. (We may define more precisely what we mean by the "form" of a proposition as that which remains unchanged in it when every constituent term of it is replaced by another.) Having divided our arguments, one by one, into consecutive propositions and separated those collectively constituting "evidence" from their conclusions, we shall proceed to notice (i.) the relation in which the evidential propositions stand to their conclusions, and (ii.) the different forms of the several conclusions themselves, each considered on its own account. Now, these conclusions, taken separately, will be seen, on inspection, some to resemble others, and some to differ from those others. Within the groups which differ we shall find further types of resemblance, and so, continuing this process of noting identity where identity is discoverable, we shall be led in the end to reduce *all* our conclusions to quite a few irreducible types. And there is little doubt that these types will be such as traditional logic symbolizes by the formulæ—(1) SaP, (2) SeP, (3) SiP, (4) SoP, or to types corresponding to them. This amounts to saying that our conclusions will be either *general* beliefs to the effect that (1) everything that is *s* also is *p*, (2) everything that is *s* is also *not p*; or they will be *particular* beliefs to the effect that (3) some things which are *s* are also *p*, (4) some things which are *s* are also *not p* (where the letters *s*, *p*, in each case stand for attributes). Or, concretely they will be beliefs of the same type, as, for example, (1) "Whatever checks exportation encourages importation," or (2) "No hydrochloric acid contains oxygen," or (3) "Some fungi are poisonous," or (4) "Some articles do not rise in price when taxed."

Now, if we arrange our arguments into four groups, according as their conclusions are of one or another of the types just enumerated, and consider each group in turn, we shall see, by inspection and comparison, in what respects any one argument resembles each other in its own group, and in what respects it differs from a representative argument in each of the other groups. And by proceeding similarly, we shall come to see in what respect any one group differs from each of the other groups. And these general resemblances and differences that we distinguish, once formulated, can be used as the principles or conditions which each class of argument satisfies. For our procedure will have yielded us not *inductive* generalizations about each class of argument, but intuitive or certain insight into the necessary and constitutive conditions of *all other* arguments we might meet with in the future, provided they conform to one or other of our four main groups. The performance of this intuitive act by means of which we are enabled to pick out those common and constitutive conditions, may be further facilitated by comparing any argument of one of our valid classes, with an *in*valid argument having a conclusion of the same type as the valid one. The conditions formulated would be found to be either precisely those which Aristotle himself formulated (known as the principles of syllogistic reasoning), or, if apparently different, such as could be reduced to them.

The reader will find, however, that a readier way of coming by this information is to consult a textbook on the Conditions of Mediate Reasoning. Nor do I suggest that the procedure outlined would be the best way of setting about the discovery and formulation of logical principles, but it would be one possible way, and it serves to illustrate what is meant by saying, firstly, that there are such fundamental principles "inherent" or "implicit" in our reasoning, and, secondly, that these are disclosed to discriminative inspection as intuitively certified, and not inductively so, and therefore as being, thirdly, certain and not merely probable in respect of their truth.

Or, again, we might proceed in an inverse way from this. Instead of fully fledged arguments, we might start our inquiry with "bare conclusions," true or false, and then cast around for evidential premises that prove them. If we took a formally different type of conclusion in turn, and adduced suitable evidence for each, we could then proceed to analyse the completed argument, as before, noting exactly where conclusion depended upon premise, until, by an exhaustive exploration, we had fully accounted for the formal character of our conclusion by that evidence alone.

Now, there are two such conditions of a quite general nature that merit our notice. General beliefs (of the form SaP, SeP), we should find, require their evidential premises to be general also; while particular beliefs (like SiP, SoP) would require their evidence to contain at least one generalization. Evidence consisting of two particular propositions can prove nothing, nor is a conclusion inferable from two negative propositions, *whether general or particular. Turning to our evidential* propositions, we shall find that if any pair of them are such that they have no term in common, nothing is inferable from them conjointly which is not inferable from each separately. But if there is one term common to them both, then something *may be* inferable from them conjointly over and above what is inferable from each separately. This common term relates the terms that are not common to both propositions, hence the connection between the diverse terms so established when explicitly stated is simply the conclusion implied by the propositions. The conclusion is inferable in certain cases because the pair of propositions are inter-related (through the mediation of the common term) in precisely the way the conclusion states. If the diverse terms are, as a matter of fact, related to each other in a definite way, then it is permissible *to state* that they are so related—and this is just what the conclusion *does*. And this simply amounts to saying that it is permissible to infer what is inferable. Presumably no one would contest this, any more than one would contest that it is permissible to desire what is desirable!

Now, it is one of the characteristics of a science that it attempts to explain its data from the fewest possible principles. Some of the clearest examples of this are found in what mathematicians call an "elegant" proof. A checkmate at chess, for instance, which is effected in the fewest possible moves and with the fewest possible pieces is preferable to a "mate" secured by advancing the whole of one's "heavy artillery" and by more numerous moves. This sense of "elegance" in proof and explanation is natural to a mind that habitually works with material that can be exactly defined or precisely measured. It is no piece of pedantry, but symptomatic of an individual's sensitiveness to precision and his recognition of the finality of fact. He accepts the facts as "final" and "binding" because they, and they alone, are the very things that are fitted for acceptance. Now, this device of explaining as much as possible by the least that can possibly do it may be applied to the body of logical principles themselves. Then we shall find that the several alternative sets of conditions which secure the validity of inference (p. 42) may all be derived from one more general and very fundamental principle which is traditionally described as the *dictum de omni et nullo*. It may be expressed thus: Whatever is distributively predicated (whether affirmatively or negatively) of any class or collection, may be predicated (affirmatively or negatively) of whatever is truly asserted to belong to that class or collection. This is an axiom, a proposition whose truth is self-evident and whose denial is self-contradictory. It does not furnish us with any startling information; it is, if you will, only a truism, but that is just its merit, for being such, its truth is self-exposed. The demand to furnish reasons for reasons must stop at some point, or else our regress of evidence for evidence would be endless. And where could the demand be more reasonably required to stop than at a ground which is directly seen by everybody not to require, nor to be susceptible of, proof, since its truth is evident immediately we contemplate it? Such a truth *is* a truism and is exactly the kind of truth required to meet the situation.

All the principles of deductive reasoning, then, derive from this fundamental axiom and three others called " the laws of thought." Their interest similarly does not arise from any novel information they convey to us. They, too, are truisms, but they are not trivial, for they form the certain basis of so much else that is important. The laws of thought are fundamental, necessary, formal, *à priori* principles : " fundamental," in the sense that they are derivable from nothing which implies them; " necessary," for their contradictories are impossible; " formal," in that every true belief, irrespective of what it is about, conforms to them; and " *à priori*," since every step of valid inference presupposes their truth, while their truth itself is directly disclosed upon inspection of any fact whatever, and is not known inductively.

The description of these axioms as " laws of thought " has not unnaturally led people into supposing that they are "subjective." " Subjective," however, is a slippery word. To understand the dual rôle these axioms play, we shall require to throw our minds back to the distinction developed in Chapter II. between proposition and fact. Let us start with what is obvious : The laws of thought are true propositions. Now, we may distinguish among true propositions those which derive their importance from the actual knowledge they convey to us from those whose main value lies, not in the information they impart, but in what they enable us to "do." These latter are normative principles, which we do not merely "know," but which *primarily* we are said to "use" or "employ." Their function is that of enabling us to infer conclusions that *do* impart information. The description of such primitive principles as "laws," then, points to their character of being conditions of the possibility of valid reasoning. They are "laws" in the sense that consecutive thought and coherent argument presuppose their truth and are *impossible if their truth be denied. In* the relation to the performance of inference they are negative rather than positive in character. Without presupposing them we cannot advance by a single step of inference, yet in themselves they inform us of nothing novel nor interesting. By this it is not meant, once again, that during the course of any inferential process, we hold such laws before our minds or consciously recall and apply them before passing on to draw conclusion from premises. Retrospection of a just-past state of mind in which inferential activity was present will not necessarily disclose the presence to mind of such laws at all. They may be, though need not be, and usually are not, employed explicitly and purposively. But if a person refused to admit the validity of a certain valid argument, we should attempt to demonstrate its validity to him by explicitly appealing to relevant logical principles. If he, in turn, contested the validity of these, we should show that they were derived from the laws of thought, and these, in turn, could only be contradicted by him on pain of *self*-contradiction. These "laws of thought," then, are not subjective in the sense in which the laws of association are; they are not descriptive of the ways in which thought actually proceeds, for in invalid inference its procedure contravenes them. It is rather a statement of how our thought *should* proceed if our conclusion is to be *validly* inferred, or of how our thought has proceeded where our conclusion was validly inferred.

These laws are called those of (1) Identity, (2) Non-contradiction, and (3) Excluded Middle. (1) Identity (" A is A," " Everything is what it is "), applied to a proposition, amounts to insisting upon its *singleness of meaning* (irrespective of innumerable reassertions of it in different contexts, and irrespective of the number of assertors), and upon the *unchangeableness of its truth or falsity* (irrespective of different contexts, times, or places in which it is reasserted). Only when propositions are thus regarded as fixed and invariable can our reasoning about them be valid. During one and the same argument, each *term*, as well as each proposition, must be used with a single unvaried meaning. This singleness of meaning amid difference of context and reassertion is not, however, imposed by our minds, but is founded in " things." It is not that the mind has a peculiar tendency or bias of its own to proceed in this way—a bias which is not " corroborated " by the structure of reality or the character of fact. Just because " everything is what it is and not another thing," just because things remain identical or " the same " despite their changes, is it possible for us to assert them, at different times, to be the *same* things *differently* characterized.

(2) The principle of Non-contradiction (" A cannot both be B and not be B," " A thing cannot at the same time both possess a certain attribute and not possess it ") likewise expresses a fact about things—one way in which things are not characterized. Therefore it has an application to thinking, for it entails, firstly, that we cannot, except on pain of self-contradiction, conceive anything both as possessing and as not possessing a certain attribute at the same time; secondly, that of two contradictory propositions, both cannot be true; and, thirdly, that in asserting any proposition to be true, we are thereby committed to asserting the

falsity of some other one. Thus, every affirmation implies a denial. And this last point is not unimportant, for we cannot be said to have fully grasped the import of any proposition to which we have assented unless we have realized precisely *what it denies.*

(3) The principle of Excluded Middle supplements that of Non-contradiction. The latter declares that of any two contradictory attributes no thing can have both at once; the former declares that one of them must be truly assertible of everything whatever ("A is either B or is not B"). Applied to thought, the principle of Non-contradiction affirms that of any pair of contradictory propositions *one must be false,* the truth of the one implying the falsity of the other, while "Excluded Middle" affirms that *one must be true,* the falsity of the one implying the truth of the other. Hence, the possibility of any "middle," or third, alternative between A being B and A not being B is necessarily excluded. The possibility of affirming something to be true by denying something else to be so rests precisely upon these two principles being conjunctively employed or presupposed. And all three principles, "Identity," "Non-contradiction," and "Excluded Middle," along with the *dictum de omni et nullo,* collectively constitute the authority and basis of every type of deductive inference we may validly perform. In this way we see that the special conditions relevant to specifically different types of deductive inference are all derivable from a few primary, more pervasive, underivable principles. Hence, so far as securing validity pure and simple for our conclusions is concerned, there are no insurmountable difficulties confronting us once we have acquired possession in practice of these principles.

But to repeat, we usually want to know more than this. We are not completely satisfied in discovering that our conclusion is true provided our premises are. We also want to know whether our premises are true, for only then can we infer that our conclusion is true with probability or certainty. Now, we saw (p. 46) that *every* valid argument must contain at least one generalization among its premises, and that those arguments in which a general conclusion is drawn must contain no premise which is not a generalization. But it is not only in the performance of inferential steps that we run risk of error; we are equally liable to it through asserting generalizations to be true when, in fact, they are not. Hence, a separate question emerges here for investigation: What are the conditions under which true generalizations, fitted to serve as premises in arguments, may be obtained?

REFERENCES

Wolf, A.: *Essentials of Logic* (Chs. VIII.-XIV., inc.).
Joseph, H. W. B.: *An Introduction to Logic* (Chs. IX.-XVII., inc.).
Keynes, J. N.: *Formal Logic* (Part III.).
Rougier, L.: *La Structure des Théories déductives.*
Bradley, F. H.: *Principles of Logic* (Vol. I., Bk. II.).
Wilson, J. Cook: *Statement and Inference* (Bk. III.).
For "Laws of Thought":—
Johnson, W. E.: *Logic I.* (Ch. XIV.).
Jones, P. E. C.: *A New Law of Thought and its Logical Bearings.*
Couturat, L.: *The Algebra of Logic.*

CHAPTER V

GENERALIZATION AND EXPLANATION

Broadly speaking, generalizations fulfil either or both these offices: they constitute " termini " of our thinking, or " media " through the instrumentality of which further knowledge may be reached, and without which it could not. A generalization may be an interesting and enlightening piece of knowledge that is worth knowing on its own account, for what it tells us about ourselves and the world and simply that alone (that is, a " terminus "); or, whether interesting or uninteresting in itself, its chief importance may be a " strategic " one in that it permits us to reach further conclusions that are interesting and important. Thus one and the same piece of knowledge may have both instrumental and intrinsic value.

So far we have restricted ourselves to considering the conditions which correct reasoning must satisfy. Now, such correct reasoning must sometimes be directed towards reaching conclusions which are not simply statements about this or that particular object, but about all objects of a certain specified sort. The world is such a vast place that, although it is easy to assert propositions about every object of a certain sort in it, it is anything but easy to know whether those assertions are even probably true. The bias that the untrained mind betrays towards free and easy generalization, and its indifference to the need of evidence, shows only too desperately the risk of error hidden here. Probably no maxim of common logic is more widespread than the warning not to generalize further than the evidence warrants—not to assert something to be true of all individuals of a certain sort when experience has only shown it to be true of some of them. But the rule, theoretically recognized, is too often ignored in practice. How many popular opinions about foreign peoples, for instance (especially when uncomplimentary), are generalizations based on adequate and trustworthy evidence? Daily experience sufficiently brings before our notice the risk we run in generalization of illicitly passing beyond what the evidence justifies. Yet it is a risk we must run by the nature of the case, for knowledge vitally depends on the possibility of reaching true generalizations. Evidently our only measure to minimize the risk is to gain some insight into the character of sound generalizations and discover how they were obtained. Our most representative examples are unquestionably those found within the various empirical sciences. The results of physics, chemistry, biology, economics, and the rest, are themselves generalizations. So if we discover the common character of such general results by examining the best attested samples of them, and if we consider the methods adopted to secure them, we shall probably acquire some regulative notions to guide us in making safe generalizations for ourselves, and to help us in criticizing usefully particular generalizations we encounter from time to time.

We commonly assume, according to purpose, an attitude of inquiry to two quite different things—namely, in the first instance, to observed *facts* of some sort (as things *to be* explained), and, in the second, to *generalizations* (as purporting to be explanatory of facts). We may be confronted with a fact that has caught our interest and for which we seek an explanation. Or we may have become acquainted with what claims to be an explanation of certain facts, and seek to discover for ourselves just how it *does* explain them. That is to say, our point of departure may be either from "facts" or from "explanations," and our dominant attitude of mind will be one of *discovery* or one of *understanding*, respectively. Much as we had to distinguish the question of how habits of correct reasoning are formed from the question of what constitutes the validity of valid reasoning, so here we shall have to observe that it is one question to ask what in general is the procedure of those people whose particular business it is to reach sound generalizations, and quite another to discover what are the principles underlying their successful generalizing. So I propose three further topics, the attempt to answer which will occupy us throughout the remainder of this booklet. They are: (1) What different sorts of generalization are there? (2) How are they obtained? (3) What presuppositions do they make?

Let us consider the first. Organized knowledge in the form called "a science" is from beginning to end bent on explanation. Though scientific interest may be awakened by observation of an unusual character or some irregular way of behaviour of a *particular* natural object, the explanatory effort is always directed towards reaching an explanation that is *general*, one that applies not simply to the particular case observed, but to all other cases like it, irrespective of place and time. Though psychologically the explanatory interest may have been evoked by a particular object its theoretical reference is not confined to that object but extends to the type or class of natural objects of which that particular individual is regarded as merely a sample or exemplification. Theoretical knowledge, as distinct from practical knowledge, consists in showing how the matter to be explained follows from or is connected with other items that are already more or less fully understood. So explanation, in the wide sense of the word, is an affair of degrees, for the character of a thing or occurrence may be totally unexplained, or partly accounted for, or possibly wholly explained. This wide or popular sense of the term, however, is not always a useful one.

Just because of its "width" those who employ it fail to realize that the solving of a problem is usually a progressive business. It frequently resolves itself into a series of attempts at explaining a number of subsidiary problems—that is to say, the solution of the initial problem logically depends upon solutions to the subordinate ones being reached. It is in this connection that a defect of much "popular" interest in theoretical knowledge becomes apparent. There is a certain *naïveté* in that popular interest which ever seizes upon "big problems," which inevitably depend for their solution on explanations to subordinate problems first having been attained. Not only is this true of more speculative questions such as: "Is there a purpose in life?" "Does the mind survive the death of the body?" "Are our wills free or determined?" but it applies equally to more "mundane" inquiries, such as: "Is Prohibition desirable?" or "Can mental capacities be inherited?" Ordinarily a supposedly plain question is asked and a plain "Yes" or "No" is looked for. A problem is raised in a single question and it is tacitly assumed that its answer can be returned as briefly. These are simply indications that what is uppermost is an interest in the "subject-matter" of the question, and that this interest is uncontrolled and "unsobered" by a scientific or logical training which inculcates the practice of piecemeal investigation and attempts to approximate towards a full answer by means of successive partial explanations, rather than returning one whole, complete explanation at a blow. Nearly all popular interest centres in what are really the most difficult problems of science and philosophy, those which a reputable thinker would rather leave to the last for solution. Those near at hand, which could be more profitably discussed, remain unknown to the general reader or, if known, interest him little. The daily press conducts its controversies on a variety of economic, social, or scientific problems, which are usually formulated in an attractive though inadequate way. Contributions to these symposia are welcomed from celebrities whose opinions may be interesting, but can scarcely be considered " expert evidence " on the matter in dispute. The periodical press will solicit a boxer's opinion on " life after death " or a cinema star's views on the value of religion. Personal curiosity may legitimately be slaked by these contributions, but the methods by which the inquiries are conducted and the character of the " evidence " adduced flavour too much of the contributor's " personal reactions " to be considered serious steps towards a solution. The gathering of such " personal views " on big problems and the tendency to count heads for a verdict presuppose that explanation is a much simpler thing than it really is. Apart from supposing that personal opinions of celebrities, however celebrated, constitute real evidence at all (unless, of course, they are specialists on the matter at issue), there remains the more important objection that explanations, even when theoretically forthcoming, cannot usually be given in the terms in which the question was " set," just because it is usually " set " in too simple-minded a fashion, without due appreciation either of the character of its relevant subject-matter or of the methods which would most likely prove successful in grappling with the problem. So a more intelligent way of following up a question that interests us will be, having first made sure we understand exactly what *is* at issue, to divide it into as many departmental problems as we can discern within it. The possibility of answering these will depend upon our taking over certain knowledge " on authority " from those who have limited their attention to the sciences relevant. In the light of this clear insight we shall probably be able to reformulate our initial question more advantageously, remembering that to be able to formulate a question precisely and adequately is often to be halfway towards its solution. At this stage we shall ponder our problem with a view to discovering where are the strategic points within it, and to grasping the sort of evidence that would be adequate to answer it without, of course, assuming that evidence of the sort is necessarily forthcoming. Obviously, no rules can be given for the successful performance of these tasks: it depends too intimately upon the knowledge and acumen of the thinker. Confronted with wide or general problems, the maxim is to divide wherever possible and conquer piece by piece. In so far as explanations of subordinate problems are reached, so far is it possible to make useful judgments of probability about the wider issue, and so far are we reaching a partial explanation of it.

The explanations which form the body of knowledge or results in the natural and social sciences are the outcome of just such piecemeal attempts. The ultimate aim of every science is to reach a complete knowledge of the essential conditions that determine the character of the data proper to its field. But so complex and subtly connected are the items of this data that this ultimate aim can be accomplished, if at all, only by approximations. The general tenor of scientific explanation is to disclose increasingly more determinate and precise knowledge of the general conditions or " laws " which account for the structure and behaviour of natural objects. And the more diversely these objects are characterized, and the more complicated the relationships into which they enter, the greater is the measure of analysis and description necessary before their laws can be traced. Explanation of assigned data, then, consists in discovering which are the fewest laws adequate to explain them, and in demonstrating with respect to particular classes of objects (contained among those data) that their structure and behaviour *do* conform to, or *are* correctly described by, those laws. Stages of progressive explanation are more or less clearly marked out by the attainment of two sorts of generalization, usually referred to as (1) empirical generalizations, and, (2), explanatory generalizations or "laws" or "established truths"—not that the latter are "established" with certainty, though their probability will usually be much higher than that of an empirical generalization.

The function of an empirical generalization is not to explain but to describe. It is, however, a description which facilitates explanation, for it is descriptive of something needing explanation. And we cannot explain what we have not summarily described and formulated. That the cost of living tends to rise during and after a war is an empirical generalization based upon the family budgets of countless people in many countries at different dates. Such a generalization explains nothing, but itself needs explanation, for it stands unconnected with any body of knowledge already acquired. For the economist this generalization constitutes a problem which can be explained by connecting it with other data concerning conditions of trade among countries at war and with certain economic principles in such a way as to show deductively how such a change in living expenses should be necessitated. Empirical generalizations are the results of observations and experiments, and usually arise at an early stage in the development of a science. When they are seen to be derivative from principles of wider generality which are already known, and which already possess independently of them an appreciable probability, the problems to which those generalizations gave rise are said to have been "explained." Empirical generalizations as statements of observed uniformities or regularities of occurrence (of the form, "All observed S's have been P" or "A certain proportion of the observed S's have been P") are presumptive evidence that there is some constant condition determining those occurrences that has so far been unobserved, or which, though known to exist and determine certain other occurrences, has not yet been perceived to determine these also. Enumerative generalizations that are only based on a few random observations (*cf.* superstitious beliefs) will clearly possess a negligible measure of probability. The probability is only enhanced when careful exploration has failed to disclose any exceptions, and when the instances composing the data of the enumeration have been selected from environments, and under circumstances, as widely different as possible. Where the data of the problem under investigation is particularly complex, and where the characteristics of that data cannot be very exhaustively defined (for example, in problems of crime, population, trade, etc.), a preliminary measure usually adopted is to collect and classify statistical findings which have been purposively elicited. Graphical and other representations of statistical summaries often reveal uniformities or variations that are felt to be significant as expressions of some underlying set of conditions that are conjointly responsible for the state of affairs that the statistics represent. For instance, the average number of suicides among a certain population may be found to vary with queer regularity according to the seasons. Statistics collected over a number of years may reveal that there has been a constant tendency for the greatest number of suicides to occur at midsummer and the lowest number to occur at mid-winter, so that a graphical representation of these statistics forms an almost symmetrical wave-like curve. Here, then, is an empirical generalization which may suggest a useful research for "laws" or determining conditions, but the generalization in itself obviously explains nothing, being merely descriptive of a vast array of facts which, taken in bulk and "interrogated," are more or less "eloquent" of some or other determining conditions underlying them. So from a mere enumeration of observed particulars summarized in an empirical generalization, an hypothesis which *prima facie* might be explanatory is formulated and the researcher pushes ahead to discover facts or to make deductions which may eventually lead to their confirmation or rejection, and thus to the explanation of the initial problem. So an empirical generalization, whether it states a *quantitative* connection (for example, "statistical uniformities") or a *qualitative* one (for example, the observed, unvariable co-presence or sequence of characteristics or events), is a summary proposition. But it is not only an economical substitute for a number of singular propositions (each recording a single instance of variable or unvariable, co-presence or sequence of characteristics); it is besides this a ground from which we may pass eventually to asserting, with greater or lesser probability, the truth of a genuine explanation.

The second class of generalizations which we called "explanatory generalizations" or "laws" or "relatively established truths" are precisely statements of the conditions that determine the character of the particulars enumerated in our empirical generalization. Explanatory generalizations, then, are "termini" of successive analyses of facts that have enabled us to discover their determining conditions. To *understand* an explanation is simply to see that the determining conditions formulated in it *do* account for the character of those observed facts whose explanation was sought. This, the narrower sense of the term explanation, is that in which the sciences are themselves "bodies of explanations" so to say.

But there is a connection between the narrower and wider senses of the term that merits attention. There are several types of explanation which may be arranged in an imaginary scale according to the degree of intellectual satisfaction provided by them. Firstly, there is the sort of explanation met with in the purely formal sciences. These are demonstratively certain deductions of propositions asserting implications—that is, so-called "necessary" or "hypothetical propositions"—such as compose the body of results in pure mathematics. Explanations of this type are not results of generalizations from experiences of particular things, but are statements of relationships between properties of fundamental concepts of a certain kind. Such statements are of the form: "If certain of these concepts are related in given ways, then they will also be related in other ways." They are deductions from definitions and axioms which may or may not correspond with facts about the natural characteristics of *existent* objects, their correspondence or non-correspondence in no way affecting the validity and certainty of mathematical results themselves. Secondly, there are those scientific explanations we call "natural laws," which *do* claim to apply to existent objects and their characteristics or to natural events. They usually possess high probability, but never the certainty of the former type of explanation. Such are the "established results" of applied mathematics, physics, and, in fact, all the empirical sciences. Thirdly, there are the teleological explanations furnished by biology and the sciences of human behaviour, but absent from such natural sciences as physics and chemistry. An essential factor in such explanations is reference to a purpose or end for which, or to which, the character of the objects to be explained is adapted, and without reference to which their distinctive character must remain unexplained. Fourthly, there is explanation by reference to membership of a class or to occupancy of a determinate position in a series. An example of the former is the identification of a certain fungus by the use of a key or classification of fungi. The ordinary procedure of classifying, referring species to its genus, is equally a genuine form of explanation, though perhaps a less "satisfying" type than the former ones.

References

Baynes, T. S. (trans.): *Port-Royal Logic* (Part IV.).
Descartes, R.: *Discourse on Method* (Part II.).
Wolf, A.: *Essentials of Scientific Method* (especially Chs. VI., VIII., and IX.).
Campbell, N.: *What is Science?* (Chs. III., V., and VII.).
Ritchie, A. B.: *Scientific Method* (Chs. III. and VI.).
Venn, J.: *Empirical Logic* (Chs. I., II., III., and XXI.).

CHAPTER VI

INDUCTIVE PROCEDURE

We shall consider in this chapter the means that have been successively employed in reaching explanatory generalizations or laws. The procedure, commonly referred to as inductive, aims at discovering and formulating the causal or determining conditions of which existent objects and their observable characteristics are the resultants. Our survey will now turn upon the question: How is the analysis of facts, observed and observable, to be conducted so as to disclose the causal factors and conditions from which they result? Natural laws in their universality and purity are not revealed directly to inspection—we may observe a stone fall, but we cannot observe the principle of gravitation. How, then, do we pass from the observed to the unobservable? What is the general character of the transition from explicandum to explication?

In its simplest form, as exemplified by sciences at a relatively elementary stage of development, inductive procedure consists of four fairly well-marked stages—namely, (i.) observation of a number of similar facts that are summed up in an empirical generalization; (ii.) formation of an hypothesis, suggested by the empirical generalization when considered in relation to knowledge already attained which bears on these or connected facts; (iii.) a deductive step in which the investigator infers the consequences that follow from the hypothesis when entertained as true; and (iv.) return to the order of observable facts and an analysis of those relevant to the deduced consequences with a view to establishing the truth or falsity of the deductions, and hence of the hypothesis itself. When an hypothesis is confirmed by phenomena that are amenable to quantitative measurement it is usually possible to reformulate its original statement more exactly. We shall, for instance, be able to substitute for a proposition asserting mere indeterminate dependence of one state upon another state, a more determinate assertion of the quantitative variation of the one in relation to the quantitative variation of the other.

Inductive procedure in research at a "higher" or more developed level of a science is essentially similar to that at its lower level, though the points of departure in the two cases may differ. For example, instead of starting, as in (i.), from an empirical generalization summing up *particular observations,* the researcher may begin with a number of *explanatory generalizations* with a view to summarizing them in turn under a wider law. Where the explanatory generalizations are themselves explained by the more comprehensive generalization under which they are brought, this latter is called a theory. But in some cases the wider law does not explain, but merely summarizes the several explanatory generalizations (in the way that an empirical generalization summarizes a number of single observations), in which cases it is referred to, not as a theory, but as a summary law. The subordinate explanatory generalizations are at only one remove from the order of observable facts, while summary laws and theories are at two removes from it. Further, the truth of theories or summary laws implies that of the subordinate generalizations, but the truth of the latter does not imply that of the former. And clearly a lower degree of probability will attach to theories or summary laws than belongs to any one of the explanatory generalizations subordinate to them.

A general risk we run at the first stage of inductive inquiry is that of "finding" what we expect to find or what would be useful in supporting a preconception we should like to see confirmed; not that we willingly deceive ourselves "with our eyes open," but for the simple reason that accurate observation is a difficult matter, something quite other than a bovine stare. Fruitful observation must be selective; there must be a ready "give and take" between eye and mind, so that we are not side-tracked by the irrelevant, confused by mere profusion, but are intelligently selective in what we single out for careful discrimination. This risk of "finding" what one expects to find, the bias of confronting observable data with preconceptions about its character, is one we are so exceedingly liable to run in the inspection of mental phenomena, for instance, that many investigators make it the ground of a standing objection to the practice of introspection as a psychological method. If anybody doubts the genuineness of this risk let him study the psychology of attention and consider the misjudgments due to "expectation" and to volitional changes in the direction of attention. We all know from common experience how recognition of an object is facilitated if we are expecting to perceive it. And we are as well aware of the corresponding demerit of expectation which induces us to "recognize" something which is not really what we suppose at all! So ingrained are these unconscious predispositions to mal-observation and to misobservation that the psychology of bias due to expectancy confirms Jevons in declaring "it is difficult to find persons who can with perfect fairness register facts for and against their own peculiar views." We tend specially to notice instances which confirm our hypothesis and unwittingly neglect to notice those that run counter to it; much less do we set ourselves deliberately to seek out such contradictory evidence.

But selective observation alone cannot discover for us the essential or determining conditions of the facts summarized in our empirical generalization. They can be discovered only after other conditions, that are jointly operative but not determinative of the particular characteristics to be explained, have been eliminated. This elimination may be one of physical separation or withdrawal, or else a " mental subtraction," as when we know the effects of the " eliminated " condition already and can, therefore, make allowance for them by regarding them as irrelevant features in our observed facts.

Personal observation and the testimony of others provide in this way the subject-matter of empirical generalization, and the next step is that of forming a provisional explanation or plausible hypothesis to account for the problem to which they have given rise. Again, there are no rules for this; brilliant conjectures that are not merely spectacular, but along profitable lines are little likely to occur to a mind that is not already well informed of the detailed character of the data. Every explanatory generalization was once an hypothesis; in fact, it is substantially one and the same proposition that now is empirically confirmed as once was hypothetically entertained. It is precisely one of the privileges the sciences enjoy that their hypotheses are amenable to confirmation or rejection by appeal to observable fact, and this doubtless accounts in a measure for the astonishing rate of their development. The empirical scientist refuses seriously to entertain an hypothesis unless it is of such a character to permit of it being tested directly or indirectly by observation. (But when the problem to be explained is about supposed facts whose existence cannot by the nature of the case be established inductively nor be revealed to sense-perception, then it is obviously absurd to insist on empirical verification of hypotheses. This is largely the case, for instance, with the major problems of philosophy, and therefore we shall not be surprised to find progress towards their solution is slower in consequence.)

Scientific hypotheses that have been empirically confirmed not only explain the problem for which they were invoked, but also, as a rule, allow us to account for other facts with which we may have previously been acquainted but which have not so far been explained, or to discover additional facts that have not so far been observed. In this way, by means of one and the same attested generalization we are enabled both to explain and to predict. Simple enumeration of observed resemblances is sufficient to occasion the formulation of an hypothesis, but never, of course, to verify it. Argument by analogy may slightly increase the low measure of its initial probability, but the most difficult part of the explanatory task remains to be performed—that of adducing empirical evidence in a form suitable to demonstrate the truth of the hypothesis with an appreciably high probability. A genuine causal law, or assigned set of determining conditions for the occurrence of observable states or events will, if both " cause " and " effect " have been defined with sufficient determinateness, be completely reciprocal. In such cases we shall see, not only that the determinate cause gives rise to a particular effect, but also that that determinate effect follows from its *determinate cause and no other. Such factual evidence* adduced in support of an hypothesis does not turn up in the course of nature in its essential " purity," so to say, but is found intimately associated with other conditions which are irrelevant to the solution of the problem in hand. Hence, these irrelevant associated conditions must be eliminated to secure an isolation of the determining conditions that are relevant. All attempts to effect such an elimination are directed in accordance with two principles—firstly, whatever may be eliminated from a supposed set of determining conditions, without eliminating the facts to be explained, is not one of the determining conditions of those facts; and, secondly, whatever condition can be present among what are supposed as being determining conditions while the facts to be explained are themselves absent from the phenomena, is not one of the determining set. Both these principles presuppose that there is a cause for every event, and that the same cause or set of determining conditions always " produces " the same effect. So the general character of inductive investigation is to ascertain what are the determining conditions indispensable to account for the character of the phenomena to be explained. And it may assume two forms: (*a*) that of showing directly, by observation or experiment, that the elimination or quantitative variation of a certain antecedent is followed by the elimination or quantitative variation in the characteristic of the phenomenon to be explained; and (*b*) that of showing indirectly that, provided a certain condition remains constant, alteration in other conditions associated with it does not entail any alteration in the phenomenon to be explained. Thus a dependence of the phenomenon upon that invariant is established. Specific formulations of these two fundamental principles to meet the special exigencies of various subject-matters are referred to as the methods of " difference," " concomitant variations," and of " agreement." The two former are by far the more cogent. In some cases the researcher, through insufficient knowledge, or through the peculiar character of his data, may not have sufficient " control " over the phenomena to be explained, so that the empirical data cannot then be analyzed with enough thoroughness to exhibit them as precise instances of the character presupposed by the method. And it is exceedingly seldom that the evidence adduced in a piece of research exemplifies only one of these methods. One method is usually found to supplement another at different junctures in the evidential argument, and thus a higher probability is secured for the truth of the hypothesis.

Now, if the inductive methods are interpreted as being primarily means of *discovery*, then their worth will be severely limited for the reason that Keynes points out—namely, that " they assume experience can shape and analyze evidence in a manner and to an extent which is not in fact possible." But we shall not go to the same extremes as Campbell does in *What is Science?* (p. 76), where he maintains that these methods " are futile, because the problem they profess to solve is not one which has ever troubled any intelligent person. They tell us how, when we know that an event is the cause or effect of another, we may discover of which other event it is the cause or the effect; as a matter of fact, the crudest common sense applied in everyday life serves for the purpose." This condemnation arises from a misunderstanding of the character of these " methods "—the misunderstanding which is evident in the words " they tell us how . . . we may *discover* . . ." The inductive methods, far from being practical rules for *discovery*, are rather rules for *proof*, or statements of the general types of proof into which empirical evidence falls. Their function is not so much to discover evidence for us, nor simply to suggest the general character of the evidence requisite for proving an hypothesis. It is to demonstrate that certain evidence, *already acquired* by the researcher, being of such and such a character, *does* confirm his explanatory hypothesis. Differences of the inductive methods correspond to and are a consequence of differences in the character of empirical objects themselves. Factual evidence of a sort suitable to prove an hypothesis of co-variation among states of a certain class of objects will clearly have to be different from evidence which is sufficient to prove mere causal dependence between characteristics that are invariable and either wholly present in, or wholly absent from, their objects.

The one method that is implicit in these inductive principles is that of varying only one determining condition at a time. And these so-called methods are more usefully conceived as principles of demonstration or proof, than as instructions on how to make discoveries. They seem to be formal principles of proof applicable to different types of empirical subject-matter, and reached by a comparative examination of a number of accepted scientific proofs dealing with data widely diversified in character—in much the way I suggested in Chapter IV. that the conditions of valid deductive inference might be discovered for ourselves. So conceived, the strict demonstrative cogency of these principles is hardly a defect, but a merit, since it operates "normatively," as a standard that compels us to recognize where our empirical data falls short of, as well as where it approximates to, satisfying those conditions of proof.

REFERENCES

Wolf, A.: *Essentials of Scientific Method* (Chs. IV., V., and VII.).
Venn, J.: *Empirical Logic* (Chs. XIV., XV., and XVII.).
Johnson, W. E.: *Logic* (Vol. II., Chs. V., IX., X., and XI.).

CHAPTER VII

THE BASES OF GENERALIZATION

Inductive investigation reaches explanatory generalizations from observed particulars. Typically, from an empirical generalization of the form, "All observed S's (or a selection of observed S's) have the character P," we pass to an assertion, with high or low probability, that "All S's whatever (irrespective of their 'place' or date, past, present, or future) will have the character P." The following will serve as a relatively simple example. We have observed that this, that, and the other sample of methylated spirit was inflammable, and we believe that all samples of methylated spirit, no matter when and where they are met with, will likewise be found inflammable. If we study chemistry we shall find that all samples will have this character because of certain constant properties which constitute, in part, the determining conditions. But in all such cases our direct evidence is restricted to a few instances with which we were personally acquainted, eked out, perhaps, with the testimony of others. But our generalization applies indifferently to all specimens of the fluid wherever and whenever encountered. Strictly, two assumptions have been made here (assuming we have not chemically analyzed the observed samples and satisfied ourselves that they are not really samples of other inflammable fluids)—namely, we assumed that the samples observed *do* possess the defining properties of methylated spirit, when we have only "authority" and not perceptual evidence of this, since we only have perceptual evidence of the inflammable character of our samples (and even this is reached inferentially). We *believe*, then, that they are samples of something having the defining characteristics of methylated spirit, and *observe* that they each possess another characteristic besides these. From this we pass to a further *assumption* that anything else possessing those same defining properties would possess this further property also, and we should affirm this belief justified on the ground of an analysis of, it may be, only one sample, where our findings are related to other relevant chemical knowledge already attained. Our principal underlying supposition, then, is this: admitting that *all* specimens have not been and cannot be directly investigated by the nature of the case, this limitation, nevertheless, should not prevent our accepting as true a generalization about the innumerable *un*examined samples, provided we can know fully enough the conditions which precisely determine the inflammable character of any one sample of the fluid.

And a moment's reflection will show us that the great mass of general beliefs we hold, often unconsciously, in daily life are generalizations which make these same assumptions. So, evidently, the probability of their truth will at least in part depend on the truth or falsity of this implicit assumption. Inquiry into what grounds, if any, can be found for believing this assumption raises philosophical issues which cannot be briefly discussed with advantage. The assumption which is, as above stated, a negative one, is usually formulated in positive terms and referred to as the principle of the Uniformity of Nature. But this title really applies not, as might be supposed from its affirmative appearance, to a very fundamental piece of *knowledge* we possess about the natural world, but really to a *problem*, which so far has not been solved nor even satisfactorily formulated. One interpretation of the principle or, more strictly, *postulate*, is that the natural world forms a system which, as a whole, remains identical and unchanging, changes occurring only within parts of it, and these changes being determined by its nature as a whole. Were the whole natural system fundamentally different in nature from what it is, the laws of the changes of its parts would be, in the aggregate, different in character from what they are now discovered to be. Such a postulate, both for its proper formulation and for its critical examination, would obviously involve an excursion into philosophy, for the issue partly turns on a discussion of contingency and necessity, and calls for a fuller analysis of the notion of "the natural world" than has yet been attained. The interpretation is useful, however, in emphasizing that there are really two important and distinct assumptions made by the principle of uniformity, and not only one. It is assumed both that the ground of natural changes is a system of some sort that persists unchanged through time, and that any change in any one "part" of the system is determinately connected with some particular sort of change in another "part." (This latter assumption we noticed briefly on p. 69.) The Uniformity postulate meanwhile remains a postulate—it is not self-evidently true or axiomatic like the laws of thought (for it can be denied without contradiction), nor can it be established as probably true by induction itself (for this would be circular), nor is it a provisional assumption, held only until it can be supplanted by a proved principle and then "scrapped." It is a proposition whose truth must be granted or allowed us if ever we are to reach explanations at all, since it lies at the basis of generalizations of every sort about existent objects and events, both the generalizations constantly made in daily life as well as those made by every empirical science.

The principle of Natural Uniformity, then, contains the assertion that changes are determinately connected, and this idea is given complete expression, according to some logicians, in the notion of Causation. But it is doubtful if this clarifies the issue, since "causation" itself is a conception the explanation of which is beset with difficulties. We can easily enough recognize *instances* of causation, occurrences that are called "causes" and "effects" in ordinary experience, but the term is so loosely used that we cannot be clear how it should be defined. We speak, for instance, of influenza causing absence from work and of causing death, of a war being an effect of avarice or ignorance, or of the ringing of a bell being an effect of pressing a button. For practical purposes all such descriptions are sufficiently clear. We can "know" a cause when we "see" one, but we do not know precisely how to define causation in such terms that we can be sure that, in this sense, there *are* causes in the world, nor that our definition exhausts all that is really "causal" in those situations. But if the notion of causation is introduced to supplement the Uniformity principle, it could do so only if we have been able to reach a really adequate definition, in order to find out whether it really *does* supplement it and is not merely mistakenly assumed by us to do so on account of its prevailing vagueness. Or it might be objected that it *could* not supplement the principle since it constitutes part of the principle itself. The truth seems to be that we cannot tell what "supplements" what until we have clear and adequate definitions in mind.

It may further be argued that the interpretation of the Uniformity principle already given (p. 74) is too extreme a statement of the character of our assumption. For, it will be said, firstly, that we may expect or hope to find "order" in nature without thereby having necessarily *assumed* it; or, secondly, that if we do feel it necessary to assert definitely a belief in natural orderliness, we may nevertheless *not* be prepared to say that nature is orderly "through and through." We could not perhaps prove the impossibility or the improbability that there exist "regions" that cannot be explained by any means whatever. According as we incline to either of these views, we shall want to substitute a more restricted interpretation of the Uniformity principle than that given on p. 74.

But we may say as regards the first point, even though we may quite well entertain in mind the hypothesis of natural uniformity, without necessarily having to *affirm* its truth (especially if, with Mach, we regard scientific generalizations as being merely "descriptive"), the fact remains that our generalizations in daily life are often also expressions of rational *expectation,* and that scientific explanations can also be grounds for deducing further rational expectations *only if we admit,* not merely to hypothetically entertaining "natural uniformity," but *that we are definitely assuming it* every day of our lives, whether we are aware of doing so or not. As to the second point, it is, of course, also possible that science, being always selective, only selects for investigation classes of facts which, *prima facie,* or in the light of knowledge attained, appear *likely* to exhibit order of some sort. Or, with M. Emile Meyerson, we may think that science is constantly revealing the existence of "irrationals" in reality, factors that resist all attempt at explanation, or which can only be "explained" at the cost of bringing to light still further previously unexpected "irrationals," and that the explanatory process generally really depends upon the existence of such inexplicable factors. Clearly, if this be true, again, we should only be prepared to accept a more restricted statement of the uniformity principle than our previous one. But natural uniformity to *some* extent, and in *some* sense, would still be assumed by us in scientific and practical affairs. So, to sum up, it seems much more probable that we do, and must, assume *some sort* of uniformity principle. But it is by no means clear exactly how we should state what we are assuming in all these cases. Here, too, then, the formulation of the problem is evidently halfway towards its solution; but general agreement upon its precise formulation has not yet been reached.

One important contribution in this direction, made in recent years by Dr. C. D. Broad and Mr. J. M. Keynes, is that called the principle of "Limited Variety." It amounts to the assumption that no natural object about which we generalize is so complex that its properties fall into an infinite number of independent groups, or that if there are any objects so complex as this, at least we have on some occasions a finite probability that the object we want to generalize about is not infinitely complex. Thus, with regard to some, or all, natural objects, it is maintained that there are groups of properties finite in number which are such that the possession of one property belonging to such a group entails the possession of some other in that same group. Here we evidently have a much less vague statement to consider than we have in the traditional interpretation of the Uniformity principle, though it is no less "general" or "wide" in its reference. "*Limitation*" of natural variety is the limitation of any one natural property to connection with other properties *belonging to its group*, and the denial that it may be connected equally with natural properties belonging to other groups. "*Variety*" refers to the assumption that natural properties "hang together" in groups, the possession of any one property determining the possession of some other property within its group.

A superficially similar doctrine is the traditional one of "natural kinds," or "species," but research in evolution has shown there was no reason to believe in the existence of fixed, unmodifiable species. There does, however, seem good reason to believe that there are natural properties ordered into groups in the way suggested by the Limited Variety principle. A natural law on such an hypothesis will be the fact that the possession by a natural object of one property of a given group entails the possession by it of a certain further property belonging to the same group. Explanatory generalizations will then simply be propositions about such natural laws or facts of entailment.

REFERENCES

Venn, J.: *Empirical Logic* (Ch. IV.).
Ritchie, A. D.: *Scientific Method* (Ch. IV.).
Keynes, J. M.: *Treatise on Probability* (Part III., especially Ch. XXII.).
Metz, A.: *Une nouvelle Philosophie des Sciences.*
Meyerson, E.: *Identité et Réalité.*
Mach, E.: *Erkenntnis und Irrtum.*
Broad, C. D.: *The Philosophy of Francis Bacon.*
Broad, C. D.: *On the Relation between Induction and Probability* (Arts. *Mind,* Vols. XXVII. and XXIX.).

BIBLIOGRAPHY

PROBABLY the best way to acquire *practical* facility in the analysis of concrete arguments is to work through a book such as Wolf's *Exercises in Logic and Scientific Method*, checking one's solutions by reference to the *Key*, published separately. This may be supplemented by Patterson's *Problems in Logic* (which contains fewer but longer articles for analysis). A good general book on Logic should be read concurrently—for example, Wolf's *Essentials of Logic* and *Essentials of Scientific Method*, or Welton and Monahan's *Intermediate Logic* (but in the *Third* edition, revised by E. M. Whetnall—no earlier edition), or H. W. B. Joseph's *Introduction to Logic*.

After this survey the reader will be in a position either to follow up "separate" topics of logic arising out of a fuller study of points raised in the chapters of this booklet (and the "References" appended to each chapter will guide him to suitable reading), or he will probably be better advised to study some more advanced treatises in their entirety. An excellent course of logic would consist in a careful study of the classic treatise on the subject in our day, W. E. Johnson's *Logic* in three volumes, along with J. N. Keynes' *Formal Logic*, J. A. Venn's *Empirical Logic*, A. D. Ritchie's *Scientific Method*, and J. M. Keynes' *Treatise on Probability*. When this solid programme of reading has been accomplished the reader's own inclinations will determine the direction of his further study. I set out a further list of books on logic written from different "approaches":

I. GENERAL TREATISES OF A MORE PHILOSOPHICAL CHARACTER:

Bradley, H. W.: *Principles of Logic.*
Wilson, J. C.: *Statement and Inference.*
Sigwart: *Logic.*
Hobhouse, L. T.: *Theory of Knowledge.*

II. FORMAL OR SYMBOLIC LOGIC:

Russell, B.: *Introduction to Mathematical Philosophy.*
Russell and Whitehead: *Principia Mathematica,* Vol. I.
Russell, B.: *Principles of Mathematics,* Vol. I.
Couturat, L.: *The Algebra of Logic.*
Couturat, L.: *Les Principes des Mathématiques.*
Shearman, A. T.: *Development of Symbolic Logic.*
Shearman, A. T.: *The Scope of Formal Logic.*

III. SCIENTIFIC METHOD, STATISTICS, AND PROBABILITY:

Keynes, J. M.: *Treatise on Probability.*
Jevons, W. S.: *Principles of Science.*
Pearson, K.: *Grammar of Science.*
Keynes, J. N.: *Scope and Method of Political Economy.*
Du Pasquier, L. G.: *Le Calcul des Probabilités.*
Bowley, A. L.: *Elements of Statistics.*
Yule, G. U.: *Introduction to the Theory of Statistics.*